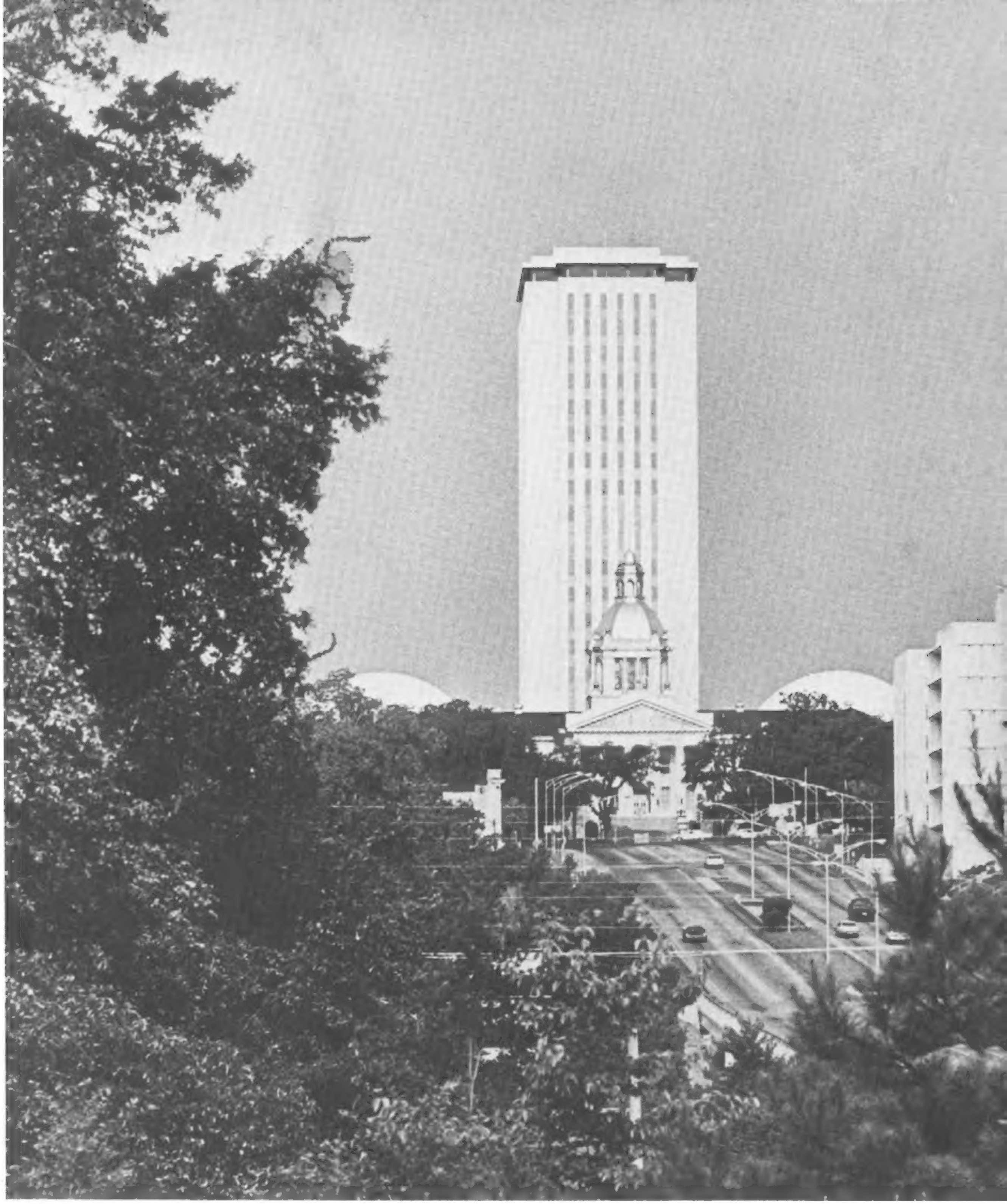


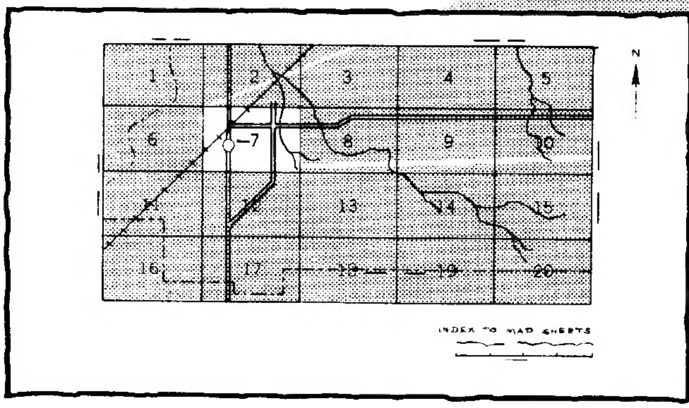
Soil Survey of

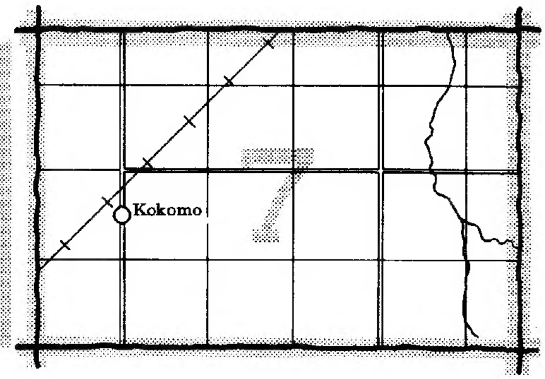
Leon County, Florida

United States Department of Agriculture
Soil Conservation Service and Forest Service
in cooperation with
University of Florida, Institute of Food and Agricultural Sciences and
Agricultural Experiment Stations, Soil Science Department,
and Florida Department of Agriculture and Consumer Services

HOW TO USE

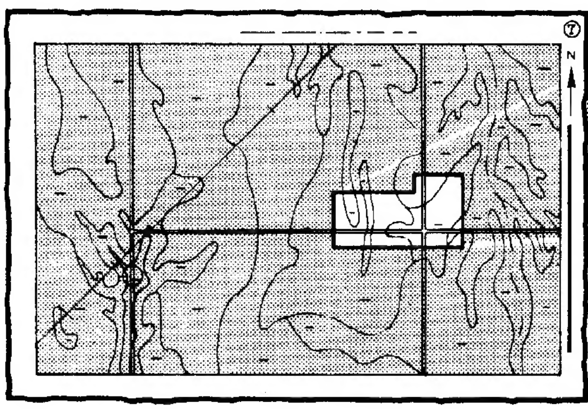
1. Locate your area of interest on the "Index to Map Sheets" (the last page of this publication).

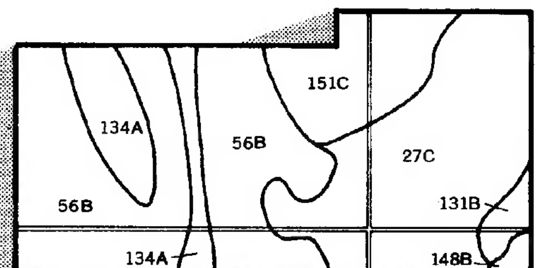




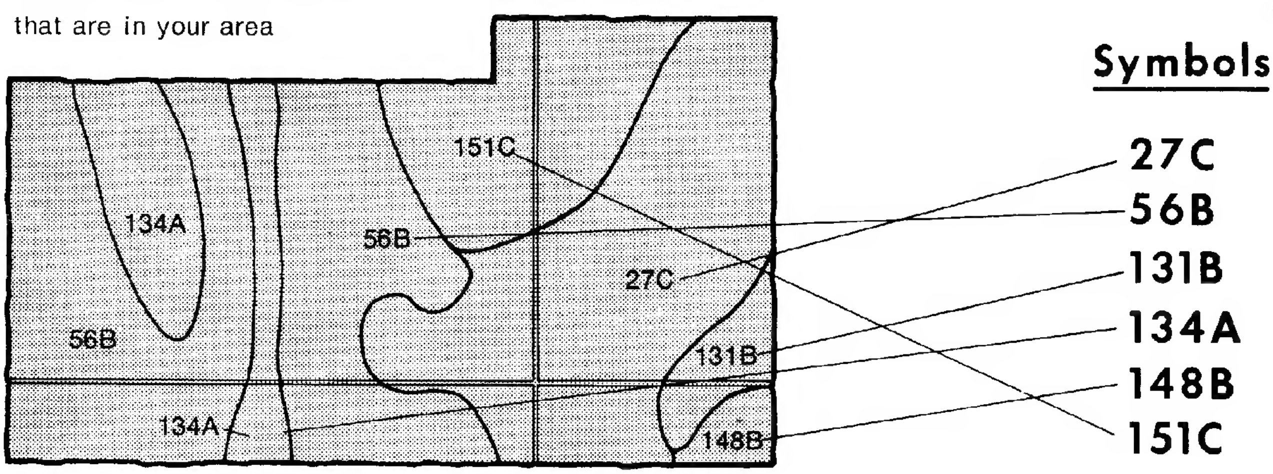
2. Note the number of the map sheet and turn to that sheet.

3. Locate your area of interest on the map sheet.



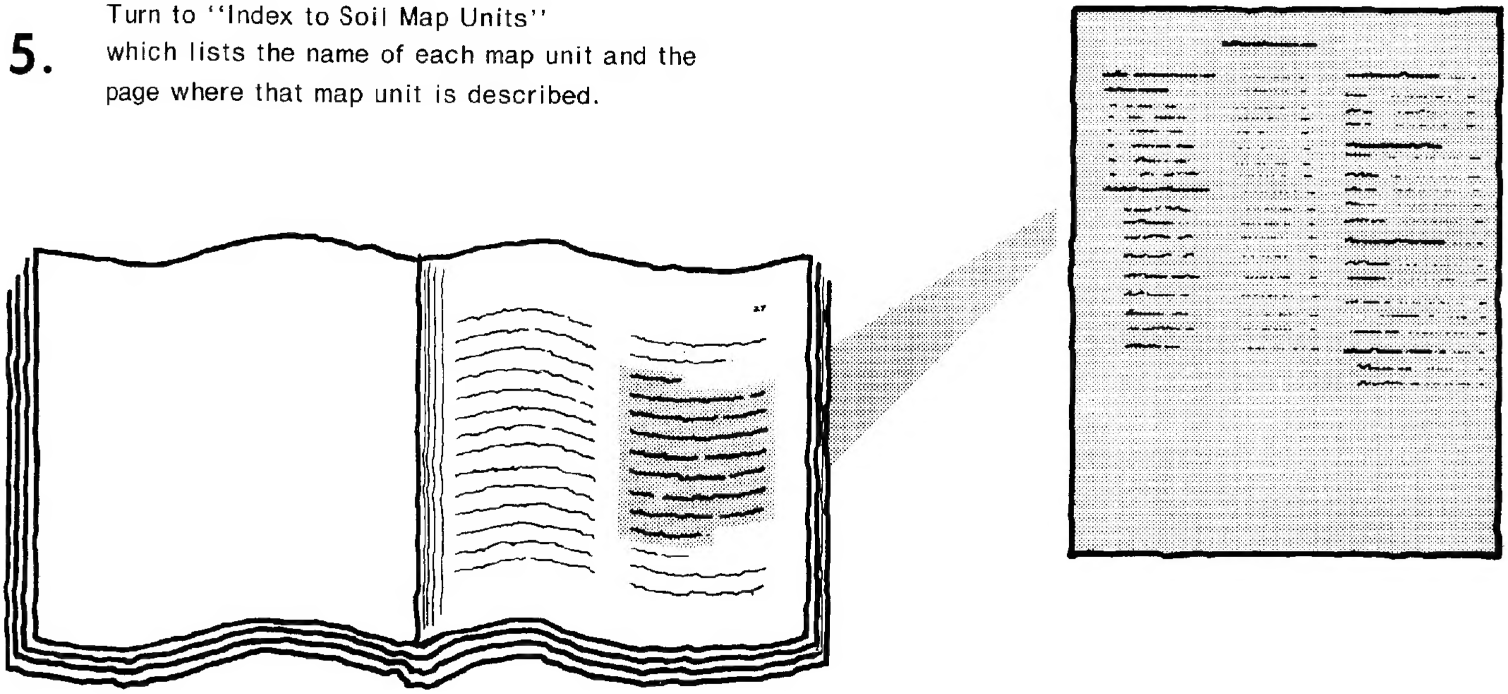


4. List the map unit symbols that are in your area

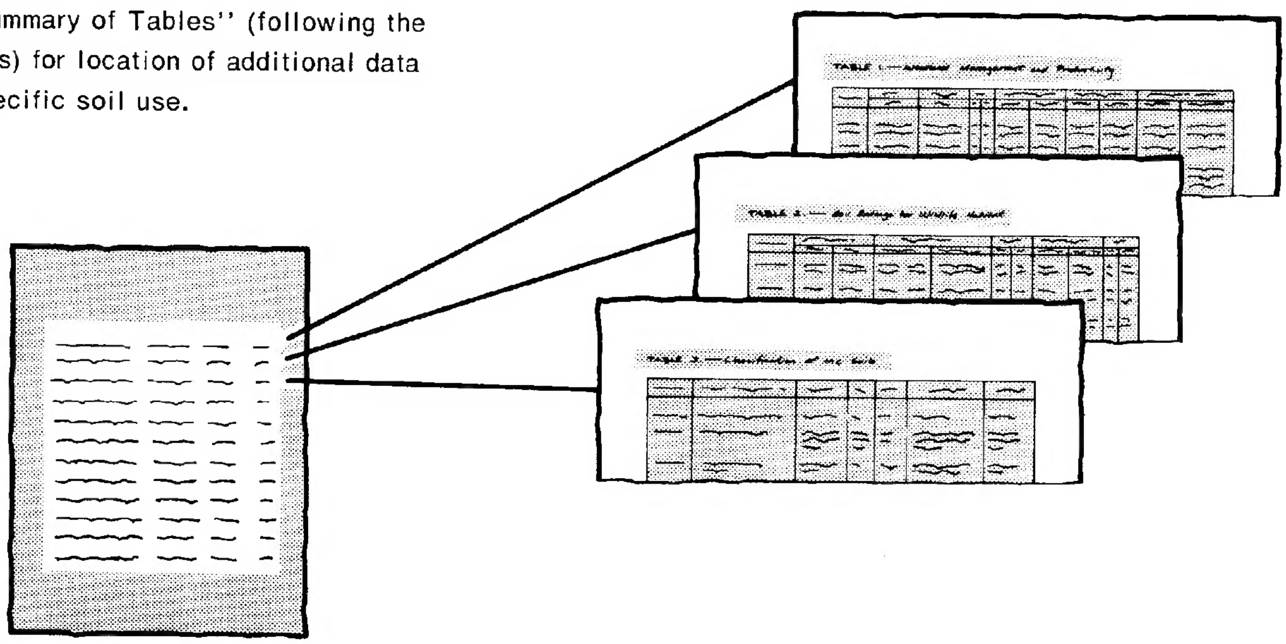


THIS SOIL SURVEY

5. Turn to "Index to Soil Map Units" which lists the name of each map unit and the page where that map unit is described.



6. See "Summary of Tables" (following the Contents) for location of additional data on a specific soil use.



7. Consult "Contents" for parts of the publication that will meet your specific needs. This survey contains useful information for farmers or ranchers, foresters or agronomists; for planners, community decision makers, engineers, developers, builders, or homebuyers; for conservationists, recreationists, teachers, or students; for specialists in wildlife management, waste disposal, or pollution control.

This soil survey is a publication of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other federal agencies, state agencies including the Agricultural Experiment Stations, and local agencies. The Soil Conservation Service has leadership for the federal part of the National Cooperative Soil Survey. In line with Department of Agriculture policies, benefits of this program are available to all, regardless of race, color, national origin, sex, religion, marital status, or age.

Major fieldwork for this soil survey was performed in the period 1975-78. Soil names and descriptions were approved in 1979. Unless otherwise indicated, statements in this publication refer to conditions in the survey area in 1979. This survey was made cooperatively by the Soil Conservation Service and the Forest Service; the University of Florida, Institute of Food and Agricultural Sciences and Agricultural Experiment Stations, Soil Science Department; the Leon County Board of County Commissioners; and Florida Department of Agriculture and Consumer Services. It is part of the technical assistance furnished to the Ochlockonee River Soil and Water Conservation District.

Soil maps in this survey may be copied without permission. Enlargement of these maps, however, could cause misunderstanding of the detail of mapping. If enlarged, maps do not show the small areas of contrasting soils that could have been shown at a larger scale.

Cover: The Florida State Capitol in Tallahassee is on Orangeburg-Urban land complex, 2 to 12 percent slopes.

contents

soil series

Issued February 1981

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summary of tables

foreword

This soil survey contains information that can be used in land-planning programs in Leon County, Florida. It contains predictions of soil behavior for selected land uses. The survey also highlights limitations and hazards inherent in the soil, improvements needed to overcome the limitations, and the impact of selected land uses on the environment.

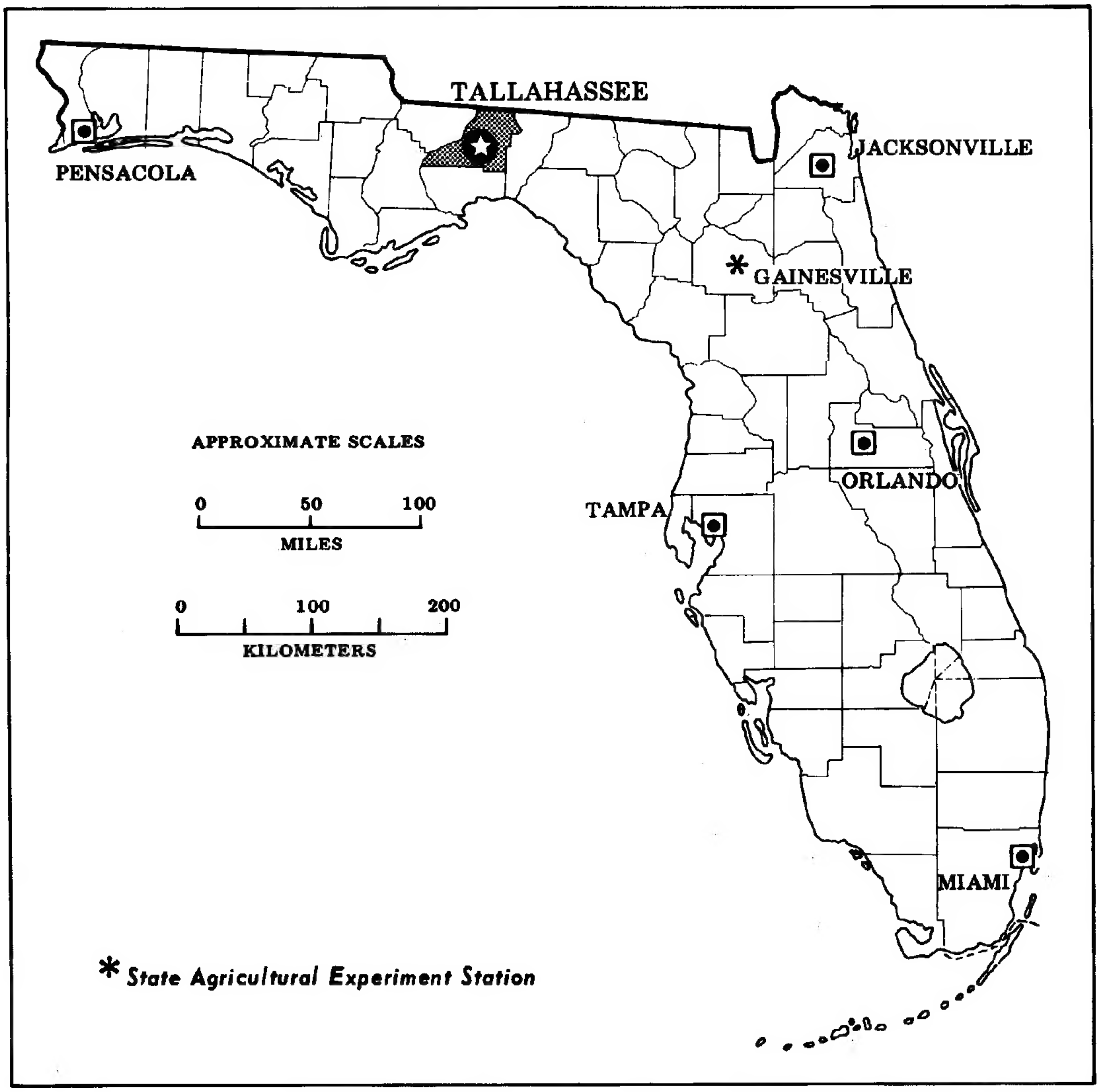
This soil survey is designed for many different users. Farmers, foresters, and agronomists can use it to evaluate the potential of the soil and the management needed for maximum food and fiber production. Planners, community officials, engineers, developers, builders, and home buyers can use the survey to plan land use, select sites for construction, and identify special practices needed to insure proper performance. Conservationists, teachers, students, and specialists in recreation, wildlife management, waste disposal, and pollution control can use the survey to help them understand, protect, and enhance the environment.

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are shallow to bedrock. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

These and many other soil properties that affect land use are described in this soil survey. Broad areas of soils are shown on the general soil map. The location of each soil is shown on the detailed soil maps. Each soil in the survey area is described. Information on specific uses is given for each soil. Help in using this publication and additional information are available at the local office of the Soil Conservation Service or the Cooperative Extension Service.

William E. Austin

William E. Austin
State Conservationist
Soil Conservation Service



Location of Leon County in Florida.

soil survey of
Leon County, Florida

By Therman E. Sanders, Soil Conservation Service

Others participating in the field work were
William T. Crews and Paul Nichols, Soil Conservation Service
and John R. Vann and Michael J. Jones, Forest Service

United States Department of Agriculture
Soil Conservation Service and Forest Service, in cooperation with
University of Florida, Institute of Food and Agriculture Sciences
and Agricultural Experiment Stations, Soil Science Department,
and Florida Department of Agriculture and Consumer Services

LEON COUNTY, part of the Florida Panhandle, is bordered on the east by Jefferson County, on the south by Wakulla County, and on the west by Gadsden and Liberty Counties. On the north it is bordered by the state of Georgia. The Ochlockonee River and Lake Talquin form the boundary between Leon County and Gadsden and Liberty Counties.

The county covers 445,400 acres, or 685 square miles. The land area within the county covers 428,928 acres. About 104,013 acres, or 163 square miles, are federally owned; most of this land is in the Apalachicola National Forest. The county is about 38 miles wide at the widest part and about 28 miles long at the longest part.

Tallahassee is the county seat and the capital of Florida.

Urban and suburban development is prevalent in the county. Tallahassee is about 27 square miles of residential, industrial, and commercial developments. Also large suburban areas are north and east of Tallahassee. Industries include dairy and poultry products, forest products, and chemical processing.

general nature of the county

Soil is intimately associated with its environment. The interaction of all soil-forming factors determines the character of the soil and its overall land use. In this section, other environmental and cultural factors that affect the use and management of soils in Leon County are discussed. The factors are climate, history, physiography, water resources, farming, transportation, and recreation.

climate

Leon County has a moderate climate. Summers are long, warm, and humid. Winters are mild to cool. The Gulf of Mexico moderates maximum and minimum temperatures.

Annual rainfall in the county averages about 57 inches. Rainfall is heaviest from June through September: about 47 percent of the annual rainfall occurs during this period. October and November are the driest months; the remainder of the rainfall is evenly distributed throughout the rest of the year.

Most summer rainfall comes from afternoon or early evening local thundershowers. During June, July, August, and September, measurable rainfall can be expected

every other day. Summer showers are sometimes heavy; 2 or 3 inches of rainfall may occur in an hour or two. Daylong rains in summer are rare and are almost always associated with a tropical storm. Winter and spring rains are usually associated with large scale continental weather developments and are of longer duration. Some last for 24 hours or longer. They are usually not so intense as the thundershowers, but occasionally they do release large amounts of rainfall over large areas. A 24-hour rainfall of 7 inches or more falls about 1 year in 10.

Hail is observed at irregular intervals in thundershowers. The individual pieces of hail are usually small and seldom cause much damage. Snow is very rare in the area and usually melts as it hits the ground.

Tropical storms can affect the area at any time during the period from early June through mid-November. These storms diminish in intensity quite rapidly as they move inland. The likelihood of a hurricane in Leon County is about once every 13 years with fringe effects felt about once every 5 years. Extended periods of dry weather or droughts can occur in any season, but they are most common in spring and fall. Droughts or dry periods in April and May, although generally of shorter duration than those in the fall, are intensified by higher temperatures.

As cold continental air flows eastward across the Florida panhandle toward Leon County the cold is appreciably modified. The coldest weather is generally the second night after the arrival of the cold front after heat is lost through radiation. The average date of the first freezing temperature is about December 3. The average date of the last freezing temperature is about February 26. Frost has occurred, however, as early as November 1 and as late as April 15. Freeze data representative of the county are shown in table 1 *(10)*.

Summer temperatures are moderated by the Gulf breeze and by cumulus clouds which frequently shade the land without completely obscuring the sun. Mean average temperature in June, July, August, and September is about 80 degrees F. Temperatures of 86 degrees or higher have occurred in May, June, July, August, and September, but 100 degrees is reached only rarely. In June, July, and August, the warmest months, the average maximum temperature is 90 degrees. Temperatures above 95 degrees occur on fewer than 22 days. Temperature and precipitation data are shown in table 2 *(9)*.

Fog occurs on an average of 6 mornings a month in winter and spring and almost never in summer and fall. Prevailing winds are generally from the south in spring and summer. In October, November, December, and January winds blow from the north. The mean windspeed for the year is 7.3 miles per hour. The lowest monthly mean windspeed, 5.8 miles per hour, occurs in August. The highest, 9 miles per hour, occurs in March.

physiography

Leon County lies within the Coastal Plain province *(5)*. Based on physiographic expression, the county can be sub-divided into three major physiographic divisions: the Northern Highlands, the Gulf Coastal Lowlands, and the River Valley Lowlands.

The Northern Highlands includes the Tallahassee Hills in the northern part of the county. These are immediately underlain by the Hawthorne Formation and the Miccosukee Formation. In Leon County, the Tallahassee Hills extend about 18 miles from the Georgia State line to the Gulf Coastal Lowlands on the south and extend about 22 miles between the Ochlockonee River on the west and the county line on the east. The area is a delta plain surface that has been dissected by streams and modified by subsurface solution.

The topography is characterized by erosional remnant hills that are on the average 120 feet high. The highest hills have elevations of about 260 feet and are relatively flat-topped. The loamy soils that developed on the hills support a lush natural vegetation of mixed pine and hardwood forest. Three large lake basins are within the Tallahassee Hills. The southern terminus of this physiographic division is abruptly separated from the adjoining Lowlands by a distinct escarpment. The western edge is bounded by the Ochlockonee River Valley Lowlands. Eastward these Highlands pass into Jefferson County.

The Gulf Coastal Lowlands covers the southern part of the county and can be subdivided into two units based on topography— the Apalachicola Coastal Lowlands and the Woodville Karst Plain. The Apalachicola Coastal Lowlands is a terrace plain that rises from 90 to 100 feet at the southern edge, the Leon-Wakulla County line, to about 150 feet at the northern edge. These lowlands are characterized by sandy flatwoods interspersed with shallow densely wooded swamps that have a few shallow, poorly defined creeks. The area is underlain by sand and clay deposits that are as much as 80 feet deep. The water table is close to the surface and during the rainy season much of the area is swampy. Almost the entire Lowlands area lies within the Apalachicola National Forest.

The Woodville Karst Plain is bounded on the west by the higher Apalachicola Coastal Lowlands and extends eastward into Jefferson County. It is characterized by loose quartz sands thinly veneering a limestone substratum that has resulted in a sinkhole sand dune topography. In Leon County, this Plain area rises from 20 to 60 feet in elevation, and it has crests of dunes rising 20 feet above the the surrounding land.

A strip at the western edge of the Plain area has a general land surface about 30 to 50 feet higher than that to the east. This strip is referred to as the Lake Munson Hills. The porous sands have permitted rainwater to rapidly move into the soluble underlying limestone. Consequently, the limestone has undergone

considerable solution by the action of these percolating ground waters, and the area has been continuously and rapidly lowered from its original level. The area is interspersed with sinks that appear as shallow sand-filled depressions. The higher areas support a vegetation composed chiefly of pines and blackjack and turkey oaks. A few surface streams have developed or exist in this unit. Some streams wind their way for short distances and then disappear into sink holes.

The River Valley Lowlands include the streams and stream valleys of the Ochlockonee and St. Marks Rivers. The area along each river is narrow, and because of the nature of the sediments through which each flows, the valleys are different.

The Ochlockonee River Valley Lowlands include the flood plain terraces of the Ochlockonee River. These lowlands are usually well defined by the nature of the sediments and by the escarpment that separates them from the Tallahassee Hills. Near the Florida-Georgia State line, the Ochlockonee Lowlands are about 2 miles wide. Just north of Lake Talquin, the fluvial sediments are in excess of 3 miles wide. The native vegetation consists mostly of sweetgum, cypress, and pines. In this area are dominantly nearly level, poorly drained, clayey soils.

The St. Marks River Valley Lowlands include the flood plain valley of the St. Marks River. The Lowlands contain no fluvial terrace surfaces and are above the modern flood plain. The stream flows upon or slightly incised into bedrock. Because the water table is usually high, the river flows through the swampy terrain. This area consists of numerous cypress swamps along with sweetgum and sawpalmetto. Soils are sandy and wet.

water resources

Leon County is characterized by many solution depressional areas that usually contain water in small ponds or lakes *(3)*. Small streams of relatively short length empty into these ponds and lakes. The two large streams in the county are the Ochlockonee River and the St. Marks River.

The Ochlockonee River is the largest river in the county. It has been dammed just upstream of State Highway 20 creating Lake Talquin. The other major stream within the county is the St. Marks River in the southeastern part.

Numerous lakes in Leon County range in size from a few acres to thousands of acres. Some occupy shallow depressional areas and exist only during the rainy season; others have basins deep enough to contain water the year round. There are still others that normally have water, yet at times drain completely in a relatively short time. Some of the major lakes in the county are Jackson, Iamonia, Talquin, Carr, Bradford, Hall, and Munson.

The Floridian Aquifer is the primary source of all underground water in Leon County. The shallow aquifers that overlie the Floridian Aquifer, including the surficial sands and the upper region of the Hawthorne Formation, are secondary sources.

The water supply for the towns, communities, and individual homes within the county is from wells. The wells are dug into the underlying limestone to the aquifer and then cased to the limestone. Depths of the wells range from 110 to 150 feet in the southern part of the county to 250 to 300 feet in the northern part.

history

Frank Sicius, researcher, Historic Tallahassee Preservation Board prepared this section.

Artifacts, such as flint tools, place people in the county almost ten thousand years ago; anthropologists surmise that it has been populated continuously since that time.

When Hernando DeSoto and the first Europeans arrived in 1539, they discovered a native population hunting and cultivating the area. The Spanish explorers discovered fertile lands drained by numerous streams and lakes and a climate characterized by subtropical summers and temperate winters.

The British took over the area in 1763 and divided Florida into two provinces. They governed the east from St. Augustine and the west from Pensacola. When the United States acquired the area in 1821, a centrally located capital in Florida became necessary. In 1823 two commissioners, Dr. William Simmons of St. Augustine and John Lee Williams from Pensacola, selected the Tallahassee area as the new territorial capital.

Leon County was established on December 24, 1824. An era of migration began then for Leon County as planters from the older Southern states abandoned their soils for the better land in this and nearby counties. The more desirable sea-island cotton prospered in Leon County, and the area developed as an important addition to the cotton lands of the South. Tallahassee and Leon County became the economic, political, and cultural center of ante-bellum Florida. Depression followed the Civil War and a new economic system emerged based on interdependence. In the sharecropping system, farmers without property cultivated land which they rented from moneyless landowners for a share of the crop.

Depressed agricultural prices in the late 19th century made farming unprofitable for sharecropper and owner alike. Many tenants left the land for the cities and many landowners sold out to northern industries who accumulated large holdings. Their use of the land as game preserves brought about an important change in the agricultural history of Leon County as thousands of cultivated acres returned to woodland.

Until World War II, Leon County grew moderately in population and remained rural in character. Following the war, however, population grew at an accelerated rate, and the county became increasingly urban. The rapid expansion of state government and the development of two universities are the major factors in this growth.

farming

Agriculture in the county includes growing corn, peanuts, soybeans, watermelons, and a few vegetables. About 38,000 acres, or 9 percent, of the county land area is cropland. About 35,000 acres, or 8 percent, of the county area is in pastureland. About 318,000 acres, or 73 percent, of the land area is forest. The remaining 56,000 acres, or 10 percent, of the land area is urban or built-up, small water areas, and other land uses. There is approximately 103,000 acres of federally owned land in the county. A large acreage of forest in the county is due to the plantations maintaining large acreages of forest for use as wildlife habitat. The plantations have an excellent wildlife development program.

Cotton was the big crop for the early settlers of the county. The farms were generally small and labor was available for harvesting. But cotton gave way to larger scale farming. In the northern part of the county, most of the plantations are operated as woodland-wildlife land. There was a little general farming.

transportation

Several county, state, and federal highways provide ready access between farms and population centers. Several trucking firms that have facilities for handling interstate trade serve the county. Also, rail and bus services are available. Scheduled national airline service is available at the Tallahassee Municipal Airport.

recreation

A variety of recreational activities are available in Leon County *(11)*, including fishing, hunting, swimming, boating, golfing (fig. 1), water skiing, hiking, canoeing, and horseback riding. A number of parks and playgrounds have up-to-date facilities for public use. Several areas in Apalachicola National Forest have been set aside for camping. The Ochlockonee and St. Marks River have facilities for fishing, hiking, boating, and canoeing. Lake Jackson, Lake Talquin, and Lake Iamonia are popular for fishing and hunting waterfowl. At Lake Hall are recreation areas for water sports, and on the shore, in MacClay Garden State Park are areas for hiking.

how this survey was made

Soil scientists made this survey to learn what soils are in the survey area, where they are, and how they can be used. They observed the steepness, length, and shape

Figure 1.—Gently sloping and sloping areas of Orangeburg fine sandy loam provide an attractive golf course.

of slopes; the size of streams and the general pattern of drainage; the kinds of native plants or crops; and the kinds of rock. They dug many holes to study soil profiles. A profile is the sequence of natural layers, or horizons, in a soil. It extends from the surface down into the parent material, which has been changed very little by leaching or by plant roots.

The soil scientists recorded the characteristics of the profiles they studied and compared those profiles with others in nearby counties and in more distant places. They classified and named the soils according to nationwide uniform procedures. They drew the boundaries of the soils on aerial photographs. These photographs show trees, buildings, fields, roads, and other details that help in drawing boundaries accurately. The soil maps at the back of this publication were prepared from aerial photographs.

The areas shown on a soil map are called map units. Most map units are made up of one kind of soil. Some are made up of two or more kinds. The map units in this survey area are described under "General soil map units" and "Detailed soil map units."

While a soil survey is in progress, samples of some soils are taken for laboratory measurements and for engineering tests. All soils are field tested to determine their characteristics. Interpretations of those characteristics may be modified during the survey. Data are assembled from other sources, such as test results, records, field experience, and state and local specialists. For example, data on crop yields under defined management are assembled from farm records and from field or plot experiments on the same kinds of soil.

But only part of a soil survey is done when the soils have been named, described, interpreted, and delineated on aerial photographs and when the laboratory data and other data have been assembled. The mass of detailed information then needs to be organized so that it can be used by farmers, woodland managers, engineers, planners, developers and builders, home buyers, and others.

general soil map units

The general soil map at the back of this publication shows broad areas that have a distinctive pattern of soils, relief, and drainage. Each map unit on the general soil map is a unique natural landscape. Typically, a map unit consists of one or more major soils and some minor soils. It is named for the major soils. The soils making up one unit can occur in other units but in a different pattern.

The general soil map can be used to compare the suitability of large areas for general land uses. Areas of suitable soils can be identified on the map. Likewise, areas where the soils are not suitable can be identified.

Because of its small scale, the map is not suitable for planning the management of a farm or field or for selecting a site for a road or building or other structure. The soils in any one map unit differ from place to place in slope, depth, drainage, and other characteristics that affect management.

The soils in the survey area vary widely in their soil limitations, restrictions, or hazards and potentials for major land uses. Table 3 shows the extent of the map units shown on the general soil map. It lists the limitations and potentials of each, and shows soil properties that limit use.

Each map unit is rated for *cultivated crops, pastures, woodland, sanitary facilities, building sites,* and *recreation areas.* Cultivated crops are those grown extensively in the county. Pastures are those improved pasture grasses grown extensively in the county. Woodland refers to areas of native pine trees. Building sites include residential, commercial, and industrial developments. Sanitary facilities include septic tank absorption fields and trench sanitary landfills. Recreation areas are campsites, picnic areas, ballfields, and other areas that are subject to heavy foot traffic.

Descriptions of map units on the general soil map follow.

soils of the sand ridges

The two general map units in this group consist of excessively drained to poorly drained, nearly level to sloping soils on uplands. Some soils are sandy throughout, some have thin lamellae below a depth of 45 inches, some are sandy to a depth of 40 to 80 inches and loamy below, and some have a sandy and loamy subsoil. These soils are in the south-central part of the county.

1. Kershaw-Ortega-Alpin

Nearly level to sloping, excessively drained and moderately well drained soils; all are sandy to a depth of 80 inches or more; some have thin loamy lamellae below 45 inches

The soils in this map unit are in two areas in the southern part of the county. A large area extends almost across the county. It is about 5 to 35 miles wide and 1/2 mile to 12 miles long. Another much smaller area is adjacent to Jefferson County in the eastern part of the county. The unit is interspersed with ponds, wet swampy areas, and a few sinks. It includes Eight Mile Pond, Lake Munson, and Lake Bradford.

The unit is on uplands. It consists of nearly level to gently sloping soils on broad ridges and sloping soils on hillsides, around sinkholes, and in drainageways. There is not a well developed stream pattern in some places. The best developed stream pattern is along Lake Talquin and the Ochlockonee River. Drainage is mostly subterraneous where no well developed surface drainage system exists. The native trees include bluejack oak, post oak, turkey oak, and longleaf pine that has an understory of pineland threeawn. On Kershaw soils are scattered sand pines, and on Ortega soils are scattered laurel oak and post oak.

This unit makes up about 85,568 acres, or 20 percent, of the land area of the county. It is about 30 percent Kershaw soils, 23 percent Ortega soils, 20 percent Alpin soils, and 27 percent soils of minor extent.

Kershaw soils are excessively drained. Typically, the surface layer is grayish brown sand about 7 inches thick. Below this is very pale brown and yellow sand that extends to a depth of 80 inches or more.

Ortega soils are moderately well drained. Typically, the surface layer is gray sand about 4 inches thick. The underlying layers to about 80 inches are light brownish gray sand, very pale brown sand, yellow sand, yellow fine sand that has brown mottles and white fine sand that has yellow mottles.

Alpin soils are excessively drained. Typically, the surface layer is dark gray sand about 4 inches thick. The subsurface layer is very pale brown sand about 55 inches thick. Below this is white sand that has thin brownish yellow loamy sand or sandy loam lenses or bands. This layer extends to a depth of 90 inches or more.

Minor soils in this unit are Lakeland, Albany, Plummer, Blanton, Rutlege, Troup, and Chipley soils.

Most of this unit is in natural woodland or has been planted to pine trees. Some areas have been cleared and planted to improved pasture grasses. Some areas are under urban development.

2. Blanton-Lutterloh-Chaires

Nearly level to gently sloping, moderately well drained to poorly drained soils; some are sandy to a depth of 40 to 80 inches and loamy below; some have a sandy and loamy subsoil

This map unit occurs as one area about 8 miles wide and 5 miles long in the southeastern corner of the county. The area is interspersed with wet swampy areas and a few sinkholes. The community of Woodville is located in this map unit.

This map unit is on uplands interspersed with flatwoods. It consists mainly of nearly level to gently sloping soils on broad ridges and small areas of nearly level soils on flatwoods and in swamps. There is not a well established drainage system, and drainage is mostly subterraneous. The native trees are mostly longleaf pine, slash pine, laurel oak, bluejack oak, scattered turkey oak on the Blanton and Lutterloh soils, and longleaf pine and slash pine on the Chaires soils. Sawpalmetto, pineland threeawn, waxmyrtle, running oak, and gallberry are common understory plants. The swampy areas are mostly cypress, bayberry, sweetgum, and titi.

This unit makes up about 20,500 acres, or 5 percent, of the county land area. It is about 50 percent Blanton soils, 25 percent Lutterloh soils, 10 percent Chaires soils, and 15 percent soils of minor extent.

Blanton soils are moderately well drained. Typically, the surface layer is dark grayish brown fine sand about 7 inches thick. The subsurface layer, to a depth of about 52 inches, is brown, light yellowish brown, and very pale brown fine sand. The subsoil is sandy clay loam to 80 inches or more. The upper 10 inches of the subsoil is brownish yellow that has reddish yellow mottles, and the lower 18 inches is light brownish gray that has red and strong brown mottles.

Lutterloh soils are somewhat poorly drained. Typically, the surface layer is grayish brown fine sand about 7 inches thick. The subsurface layer is fine sand about 52 inches thick. The upper 33 inches is mixed light gray and white, and the lower 19 inches is white. The subsoil extends below 80 inches. The upper 12 inches of the subsoil is gray fine sandy loam, and the lower 9 inches is light gray sandy clay.

Chaires soils are poorly drained. Typically, the surface layer is dark brown fine sand about 7 inches thick. The subsurface layer is fine sand about 21 inches thick. The upper 10 inches is dark grayish brown and the lower 11 inches is light gray. The upper part of the subsoil is very dark brown, dark reddish brown, dark brown, and dark yellowish brown fine sand. The lower part is gray and light greenish gray sandy clay loam that extends to a depth of 80 inches or more.

Minor soils in this unit are Albany, Talquin, Sapelo, Alpin, Troup, and Ortega soils.

Most of this unit is in natural stands of longleaf pine and mixed hardwoods, or has been cut, chopped, bedded, and planted to slash pines. The swampy areas are in natural stands of water-tolerant trees.

soils of the rolling uplands

The five general soil units in this group consist of well drained to somewhat poorly drained, nearly level to strongly sloping soils on uplands. Some soils are loamy to clayey below a depth of 20 inches, some are loamy from 20 to 40 inches, and some are sandy from 40 to 80 inches and loamy below. These soils are in the northern part of the county.

3. Blanton-Wagram-Troup

Nearly level to sloping, well drained and moderately well drained soils; most are sandy to a depth of 40 to 80 inches and loamy below; some are sandy from 20 to 40 inches and loamy below

This map unit occurs as three areas. The largest area is about 9 miles long and 3 miles wide at the widest place. This area is in the west-central part of the county. The other two areas are in the east-central part of the county and are about 1 1/2 miles wide and 3 miles long. The areas are interspersed with a few wet swampy areas, small ponds, and sinks. Northwestern Tallahassee and the community of Wadesboro are in this unit.

This map unit consists mainly of nearly level to gently sloping soils on uplands. There is an established stream pattern of creeks and branches and narrow, wet bottom land. The native trees are mostly hickory, laurel oak, magnolia, white oak, maple, sycamore, and longleaf, shortleaf, and loblolly pines. The wetter areas have sweetgum, willow, cypress, and bayberry. Dogwood, sassafras, waxmyrtle, and vines and grasses are common.

This unit makes up about 14,170 acres, or 3 percent, of the land area of the county. It is about 45 percent Blanton soils, 35 percent Wagram soils, 15 percent Troup soils, and 5 percent of minor extent.

Blanton soils are moderately well drained. Typically, the surface layer is dark grayish brown fine sand about 7 inches thick. The subsurface layer, about 45 inches thick, is brown, light yellowish brown, and pale brown fine sand. The upper 10 inches of the subsoil is brownish yellow sandy clay loam mottled reddish yellow, and the lower part is light brownish gray mottled with red and strong brown.

Wagram soils are well drained. Typically, the surface layer is grayish brown loamy fine sand about 3 inches thick. The subsurface layer is yellowish brown and brownish yellow loamy fine sand to a depth of about 31 inches. The subsoil extends to a depth of 62 inches. The upper 12 inches of the subsoil is brownish yellow fine

sandy loam; and the lower 19 inches is brownish yellow sandy clay loam. Beneath the subsoil is mottled red, brownish yellow, and light gray sandy clay that extends to a depth of 80 inches or more.

Troup soils are well drained. Typically, the surface layer is dark grayish brown fine sand about 8 inches thick. The upper subsurface layer is yellowish brown sand about 18 inches thick, the next layer is reddish yellow fine sand about 18 inches thick. The subsoil is sandy clay loam to a depth of 80 or more inches. The upper 10 inches of the subsoil is strong brown, the next 19 inches is yellowish red, and the lower part is red.

Minor soils in this unit are Norfolk, Bonifay, Dothan, Fuquay, Ocilla, Albany, Leefield, Lucy, Faceville, Plummer, Pelham, and Lynchburg soils.

This unit is mostly cleared for crops or pasture and hay. Some areas remain in loblolly and longleaf pines and mixed hardwoods.

4. Orangeburg-Lucy-Norfolk

Nearly level to strongly sloping, well drained soils; some are loamy throughout; some are sandy to a depth less than 20 inches and loamy below; some are sandy from 20 to 40 inches and loamy below

This map unit is the largest unit in the county and occupies most of the northern part. There are two areas. The city of Tallahassee and Lake Jackson are in this unit.

This unit consists of nearly level to gently sloping soils on uplands in most areas but consists of sloping to strongly sloping soils in drainageways. There is a fairly well developed drainage system of creeks and branches. Many ponds and small lakes are scattered throughout the unit. The native trees include slash, longleaf, shortleaf, and loblolly pines, live oak, red oak, white oak, hickory, magnolia, sweetgum, dogwood, and an understory of woody shrubs and grasses.

This unit makes up about 112,800 acres, or 26 percent, of the county land area. It is about 60 percent Orangeburg soils, 13 percent Lucy soils, 5 percent Norfolk soils, and 22 percent soils of minor extent.

Orangeburg soils are well drained. Typically, the surface and subsurface layers are fine sandy loam. The upper 5 inches is brown, and the lower 5 inches is yellowish red. The subsoil, extending to 80 inches or more, is yellowish red and red sandy clay loam.

Lucy soils are well drained. Typically, the surface layer is dark grayish brown fine sand about 5 inches thick. The subsurface layer is dark yellowish brown, dark brown, and strong brown fine sand about 19 inches thick. The subsoil is yellowish red sandy clay loam to a depth of 80 inches or more.

Norfolk soils are well drained. Typically, the surface layer is yellowish brown loamy fine sand about 4 inches thick. The subsoil is brownish yellow and yellowish brown fine sandy loam and sandy clay loam to a depth of about 58 inches where it changes to strong brown and reddish yellow sandy clay. The substratum is mottled brownish yellow, strong brown, and gray sandy clay that extends to 80 inches or more.

Of minor extent in this unit are Blanton, Faceville, Wagram, Yonges, and Lynchburg soils and Urban land.

Many areas of this unit are in native trees. Some areas have been cleared for improved pasture, hay, and cultivated crops such as corn, peanuts, and soybeans (fig. 2). Some areas are in urban uses.

5. Fuquay-Leefield-Bonifay

Nearly level to sloping, well drained and somewhat poorly drained soils; most are sandy to a depth of 20 to 40 inches and loamy below; some are sandy from 40 to 80 inches and loamy below

This map unit occurs as one area about 4 miles wide and 8 miles long in the east-central part of the county. This unit includes Shemonie Lake.

This unit consists of nearly level to sloping soils on uplands. There is a moderately well developed drainage system of creeks and branches and a few small ponds and wet swampy areas. The native trees include hickory, red oak, live oak, laurel oak, white oak, and longleaf and loblolly pines.

This map unit makes up about 9,440 acres, or 2 percent, of the land area of the county. It is about 45 percent Fuquay soils, 28 percent Leefield soils, 18 percent Bonifay soils, and 9 percent soils of minor extent.

Fuquay soils are well drained. Typically, the surface layer is grayish brown fine sand about 7 inches thick. The subsurface layer consists of 7 inches of yellowish brown and brownish yellow fine sand, 7 inches of yellowish brown fine sand, and 16 inches of yellowish brown loamy fine sand. The upper 27 inches of the subsoil is yellowish brown sandy clay loam. The lower 38 inches is mottled reddish yellow, light gray, brownish yellow, and red sandy clay loam. The subsoil contains about 8 percent plinthite.

Leefield soils are somewhat poorly drained. Typically, the surface layer is very dark grayish brown loamy sand about 10 inches thick. The subsurface layer is about 26 inches thick. The upper 9 inches is grayish brown loamy sand, and the lower 17 inches is yellow loamy sand that has brown and gray mottles. The subsoil is yellowish brown sandy clay loam that has gray and red mottles and extends to a depth of 80 or more inches.

Bonifay soils are well drained. Typically, the surface layer is dark grayish brown fine sand about 8 inches thick. The subsurface layer is yellowish brown fine sand in the upper 10 inches and is brownish yellow and yellow loamy fine sand in the lower 24 inches. The subsoil is yellowish brown sandy clay loam in the upper 11 inches and mottled red, white, yellow, and brown sandy clay in the lower part.

Minor soils in this unit are Wagram, Norfolk, Dothan, Troup, Albany, and Ocilla soils.

Figure 2.—Areas of pasture and cropland are common in the Orangeburg-Lucy-Norfolk general soil map unit.

About half of this unit is cleared for cultivated crops or is in hay and improved pasture. The other half is in natural vegetation.

6. Dothan-Orangeburg-Fuquay

Nearly level to strongly sloping, well drained soils; some are loamy throughout; some are sandy to a depth less than 20 inches and loamy below; some are sandy from 20 to 40 inches and loamy below

This map unit is one area about 4 1/2 miles wide and 8 miles long in the north-central part of the county. This unit includes the community of Centerville and Cromartie Arm of Lake Iamonia, Pickle Pond, Boat Pond, and Bradford Pond.

This unit consists mainly of nearly level to gently sloping soils on uplands but has sloping to strongly sloping soils in drainageways. There is a fairly well developed drainage system of creeks and branches and a few ponds and swampy areas. The native trees include loblolly pine, longleaf pine, shortleaf pine, live oak, red oak, white oak, laurel oak, magnolia, maple, and sycamore that has an understory of dogwood and other woody shrubs and vines.

This map unit makes up about 16,240 acres, or 4 percent, of the land area in the county. It is about 40 percent Dothan soils, 20 percent Orangeburg soils, 10 percent Fuquay soils, and 30 percent soils of minor extent.

Dothan soils are well drained. Typically, the surface layer is loamy fine sand about 13 inches thick. The upper 5 inches is brown and the lower 8 inches is yellowish brown. The subsoil in sequence from the top is yellowish brown fine sandy loam about 6 inches thick; yellowish brown sandy clay loam about 19 inches thick, and then reticulately mottled brown, yellow, red, and gray sandy clay loam to a depth of 80 inches or more.

Orangeburg soils are well drained. Typically, the surface and subsurface layers are brown and yellowish red fine sandy loam about 10 inches thick. The subsoil is yellowish red sandy clay loam that extends to a depth of 80 inches or more.

Fuquay soils are well drained. Typically, the surface layer is grayish brown fine sand about 7 inches thick. The subsurface layer consists of 7 inches of yellowish brown and brownish yellow fine sand, 7 inches of yellowish brown fine sand, and 16 inches of yellowish brown loamy fine sand. The upper 27 inches of the subsoil is yellowish brown sandy clay loam. The lower part that extends to a depth of 80 inches or more is mottled reddish yellow, red, brownish yellow, and light gray sandy clay loam. The subsoil contains about 8 percent plinthite.

Minor soils are Norfolk, Bonifay, Albany, Troup, Lucy, Wagram, Leefield, Ocilla, and Plummer soils.

About half of this unit is cleared for improved pasture, hay, or cultivated crops. The other part is in natural woodland trees and plants.

7. Faceville-Orangeburg-Dothan

Gently sloping to strongly sloping, well drained soils; all are sandy or loamy to a depth less than 20 inches; some are clayey below and some are loamy below

This unit extends across the northern part of the county almost to the Ochlockonee River. It is about 17 miles wide and 2 1/2 miles long. This unit includes Dry Creek, Ferguson Pond, Strickland Arm, and the community of lamonia.

This unit consists mainly of nearly level to gently sloping soils on uplands but has sloping to strongly sloping soils along drainageways. There is a fairly well developed drainage system of creeks and branches and a few wet swampy areas and depressional areas. The native trees include longleaf, loblolly, and shortleaf pines, and live oak, red oak, white oak, hickory, and magnolia along with an understory of woody bushes and vines.

This unit makes up about 36,630 acres, or 9 percent, of the land area of the county. It is about 55 percent Faceville soils, 20 percent Orangeburg soils, 8 percent Dothan soils, and 17 percent soils of minor extent.

Faceville soils are well drained. Typically, the surface layer is dark grayish brown sandy loam about 8 inches thick. The subsurface layer is strong brown sandy loam about 7 inches thick. The subsoil extends to 80 inches or more. The upper 33 inches is yellowish red sandy clay, the next 13 inches is yellowish red sandy clay mottled strong brown; and the lower 19 inches is sandy clay mottled yellowish red, reddish yellow, light gray, white, and yellowish brown.

Orangeburg soils are well drained. Typically, the surface and subsurface layers are brown and yellowish red fine sandy loam about 10 inches thick. The subsoil extending to 80 inches or more is yellowish red sandy clay loam.

Dothan soils are well drained. Typically, the surface layer is brown and yellowish brown loamy fine sand about 13 inches thick. The subsoil in sequence from the top is yellowish brown fine sandy loam about 6 inches thick, yellowish brown sandy clay loam about 19 inches thick, and then reticulately mottled brown, yellow, red, and gray sandy clay loam to a depth of 80 inches or more.

Minor soils in this unit are Fuquay, Bonifay, Norfolk, Lucy, Wagram, Blanton, Troup, Albany, Plummer, and Pelham soils.

About two-thirds of this unit is in native woodland. The other part is cleared and used for improved pasture and hay or for cultivated crops.

soils of the upland depressions and lake basins

This general soil map unit consists of poorly drained, nearly level soils in upland depressions, narrow drainageways, and shorelines of large lakes. Some are sandy to less than 20 inches, some to 20 to 40 inches, and some to 40 to 80 inches; all are loamy below. These soils are scattered throughout most of the northern half of the county.

8. Plummer-Pelham-Yonges

Nearly level, poorly drained soils; some are loamy throughout; some are sandy to a depth of 20 to 40 inches; some are sandy from 40 to 80 inches; all are loamy below

Areas of this map unit are mostly in the eastern and northern parts of the county. Most areas are long and narrow, but the areas around Lake lamonia and Carr Lake are roughly oblong.

This unit consists of nearly level soils in narrow drainageways, in depressional areas (fig. 3), and on shorelines of large lakes. Streams are common. The native trees include mostly wetland hardwoods such as swamp chestnut oak, swamp cottonwood, willow, sweetgum, water oak, blackgum, and cypress. Around some of the lakes, the plants are water-tolerant sedges and grasses.

This unit makes up about 30,740 acres, or 7 percent, of the land area of the county. It is about 60 percent Plummer soils, 20 percent Pelham soils, 15 percent Yonges soils, and 5 percent soils of minor extent.

Plummer soils are poorly drained. Typically, the surface layer is fine sand about 17 inches thick. The upper 6 inches is very dark grayish brown, and the lower 11 inches is dark grayish brown. The subsurface layers, to a depth of 61 inches, are gray, gray that has strong brown mottles, and light gray fine sand. The subsoil extending to 80 inches or more is light gray fine sandy loam that has yellowish red mottles.

Pelham soils are poorly drained. Typically, the surface layer is very dark gray fine sand, about 5 inches thick. The subsurface layers are dark gray, light brownish gray, and light gray fine sand about 21 inches thick. The subsoil is sandy clay loam to a depth of 80 inches or more. The upper 6 inches is gray that has brown mottles, and the lower part is light gray that has yellow, red, and brown mottles.

Yonges soils are poorly drained. Typically, the surface layer is very dark gray fine sandy loam about 5 inches thick. The subsurface layer is dark gray fine sand about 4 inches thick. The subsoil is gray, greenish gray, olive gray, and light gray sandy clay loam to a depth of 80 inches or more.

Minor soils in this unit are Rutlege, Sapelo, Albany, Ocilla, Pamlico, and Dorovan soils.

Some areas of this unit are in pasture but most areas are still in native plants.

soils of the swamps, flatwoods, and low ridges

This general soil map unit consists of somewhat poorly drained to very poorly drained soils on the flatwoods. Some are organic, some are sandy throughout, and

Figure 3.—Shallow ponds are common in the Plummer-Pelham-Yonges general soil map unit. These ponds are important wildlife habitat.

some have a sandy subsoil. These soils occur in the southwestern and southeastern parts of the county.

9. Dorovan-Talquin-Chipley

Nearly level, somewhat poorly drained to very poorly drained soils; some are organic; some are sandy to a depth of 80 inches; some have a sandy subsoil

Two areas of this unit are in the southern part of the county. The larger area is in the southwestern part of the county within the Apalachicola National Forest. It is about 17 miles wide and 10 miles long. The other smaller area is in the southeastern corner of the county and includes the Natural Bridge and the St. Marks River.

This unit consists of nearly level soils in swamps (fig. 4), on the flatwoods and low ridges. It consists of broad flatwoods interspersed with many small to large swampy depressional areas, poorly defined drainageways, and scattered low ridges. The native trees in the swamps and drainageways are mostly titi, cypress, sweetbay, blackgum, red maple, sweetgum, black willow, and alder. On the flatwoods are longleaf and slash pines, sawpalmetto, running oak, inkberry, fetterbush, and pineland threeawn. Native trees on the low ridges are similar to those on the flatwoods, but there are scattered oaks.

This map unit makes up about 93,400 acres, or 22 percent, of the land area of the county. It is about 34 percent Dorovan soils, 22 percent Talquin soils, 11 percent Chipley soils, and 33 percent soils of minor extent.

Dorovan soils are very poorly drained. Typically, they have a surface layer of black mucky peat about 5 inches thick. The subsurface layer extends to about 65 inches. It is black and very dark brown muck. The next layer is about 4 inches of very dark gray sandy loam. Black sand extends to a depth of 80 inches or more.

Talquin soils are poorly drained. Typically, the surface layer is dark gray fine sand about 7 inches thick. The subsurface layer is light gray fine sand about 15 inches thick. The subsoil is very dark gray and brown fine sand

Figure 4.—Cypress swamps are frequent in the Dorovan-Talquin-Chipley general soil map unit.

about 12 inches thick. Below the subsoil is light yellowish brown fine sand that extends to a depth of 80 inches or more.

Chipley soils are somewhat poorly drained. Typically, the surface layer is very dark gray and dark grayish brown fine sand about 15 inches thick. The underlying layers to a depth of 80 inches or more are brown fine sand that has gray mottles, brownish yellow fine sand that has reddish yellow and gray mottles, and brownish yellow, light brownish gray, and white fine sand.

Minor soils in this unit are Leon, Yonges, Pelham, Plummer, Ortega, Foxworth, Blanton, Rutlege, Sapelo, and Chaires soils.

Most areas of flatwoods and low ridges either have natural stands of longleaf pine or are planted to slash pine. The swamp areas are in native plants.

soils of the flood plains

This general soil map unit consists of poorly drained, nearly level soils on river flood plains. They are loamy to less than 20 inches deep and clayey below. These soils are along the western edge of the county.

10. Meggett

Nearly level, poorly drained soils, loamy to a depth less than 20 inches and clayey below

This map unit occurs as long, narrow areas in the western part of the county along the Ochlockonee River except where Lake Talquin has covered the flood plain. A large area extends from about 3 miles southwest of Interstate Highway 10 north to the Georgia State line. Another area extends southwest from Florida Highway 267 to the Wakulla County line.

This unit consists of nearly level soils on long, narrow, low ridges and in bottom channels on river flood plains. The native trees are mostly wetland hardwoods such as sweetgum, sweetbay, willows, and swamp birch. Live oak, laurel oak, spruce pine, and loblolly pine are on the low ridges.

This unit makes up about 9,440 acres, or 2 percent, of the land area in the county. It is about 52 percent Meggett soils and 48 percent soils of minor extent including some that are similar to Meggett soils but are very poorly drained and have a black and very dark gray surface layer.

Meggett soils are poorly drained. Typically, the surface layer is dark gray sandy loam about 6 inches thick, the subsurface layer is gray loam about 6 inches thick. The subsoil, extending to a depth of 50 inches, is gray clay mottled red and yellow. Beneath the subsoil is gray and light gray loam that extends to a depth of 80 inches or more.

Minor soils in this unit in addition to the similar soils are Pamlico, Dorovan, Plummer, Rutlege, Yonges, Blanton, and Albany soils in about equal proportions.

This unit is still in native plants.

detailed soil map units

The map units on the detailed soil maps at the back of this survey represent the soils in the survey area. The map unit descriptions in this section, along with the soil maps, can be used to determine the suitability and potential of a soil for specific uses. They also can be used to plan the management needed for those uses. More information on each map unit, or soil, is given under "Use and management of the soils."

Each map unit on the detailed soil maps represents an area on the landscape and consists of one or more soils for which the unit is named.

A number identifying the soil precedes the map unit name in the soil descriptions. Each description includes general facts about the soil and gives the principal hazards and limitations to be considered in planning for specific uses.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer or of the underlying material, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer or of the underlying material. They also can differ in slope, stoniness, salinity, wetness, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Orangeburg fine sandy loam, 1 to 5 percent slopes is one of several phases in the Orangeburg series.

Some map units are made up of two or more major soils. These map units are called soil complexes, or undifferentiated groups.

A *soil complex* consists of two or more soils in such an intricate pattern or in such small areas that they cannot be shown separately on the soil maps. The pattern and proportion of the soils are somewhat similar in all areas. Pamlico-Dorovan complex is an example.

An *undifferentiated group* is made up of two or more soils that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils in a mapped area are not uniform. An area can be made up of only one of the major soils, or it can be made up of all of them. Rutlege soils is an undifferentiated group in this survey area.

Most map units include small scattered areas of soils other than those for which the map unit is named. Some of these included soils have properties that differ substantially from those of the major soil or soils. Such differences could significantly affect use and management of the soils in the map unit. The included soils are identified in each map unit description. Some small areas of strongly contrasting soils are identified by a special symbol on the soil maps.

This survey includes *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Pits is an example. Miscellaneous areas are shown on the soil maps. Some that are too small to be shown are identified by a special symbol on the soil maps.

Table 4 gives the acreage and proportionate extent of each map unit. Other tables (see "Summary of tables") give properties of the soils and the limitations, capabilities, and potentials for many uses. The Glossary defines many of the terms used in describing the soils.

Soil descriptions of the detailed map units follow.

1—Albany loamy sand, 0 to 2 percent slopes. This nearly level, somewhat poorly drained soil is on lower elevations of uplands.

Typically the surface layer is very dark grayish brown loamy sand about 4 inches thick. The subsurface layer is loamy sand about 46 inches thick—the upper 17 inches is pale brown, the next 15 inches is very pale brown, and the lower 14 inches is mottled very pale brown, yellow and brownish yellow. The subsoil extends to a depth of 78 inches—the upper 13 inches is mottled light gray and yellowish brown sandy loam and the lower 15 inches is light yellowish brown sandy clay loam. Below 78 inches is light gray very fine sandy loam that has yellow and reddish yellow mottles.

Included with this soil in mapping are small areas of Troup and Plummer soils. These inclusions make up about 20 percent of the map unit.

This Albany soil has a seasonal high water table 12 to 30 inches below the surface for 1 to 2 months in most years. Available water capacity is very low in the surface and subsurface layers and medium in the subsoil. Permeability is rapid in the surface and subsurface layers and moderate in the subsoil. Natural fertility is low.

The native trees include longleaf and slash pines and mixed hardwoods—white oak, live oak, laurel oak, sweetgum, hickory, dogwood, and persimmon trees. The

understory consists of native grasses and shrubs including huckleberry, briers, and pineland threeawn.

This soil has severe limitations for cultivated crops because of periodic wetness and droughtiness in the root zone. With adequate water control, such crops as corn, soybeans, and peanuts are moderately well suited. Management includes close-growing, soil-improving crops in rotation with row crops. The close-growing crops should be used two-thirds of the time. To help improve the soil tilth, cover crops and crop residues should be used to protect the soil from erosion. Fertilizer and lime are needed.

The soil is moderately suited for pastures and hay crops. Coastal bermudagrass, bahiagrasses, and clovers are well suited to this soil. These plants respond well to fertilizers and lime. Drainage removes excess internal water in wet seasons. Controlled grazing maintains vigorous plants.

The potential is moderately high for pine trees on this soil. Moderate equipment use limitations, seedling mortality, and plant competition are management concerns. Slash and loblolly pine are the best suited trees to plant for commercial woodland production.

This Albany soil is in capability subclass IIIw.

2—Albany-Urban land complex, 0 to 2 percent slopes. This map unit consists of Albany loamy sand and Urban land in areas that are so intermixed that mapping them separately was not practical at the scale used for mapping.

About 50 to 70 percent of the unit consists of the nearly level Albany soil. In places, the soil has been reworked or reshaped but is still recognizable as Albany soil.

Typically, the Albany soil has a 4-inch thick very dark grayish brown loamy sand surface layer. The subsurface layer is loamy sand to a depth of about 50 inches. It is pale brown, very pale brown, and mottled brown and yellow. The upper part of the subsoil, to a depth of about 63 inches, is mottled light gray and yellowish brown sandy loam, and the lower part, to a depth of 78 inches or more, is light yellowish brown sandy clay loam.

About 15 to 50 percent of this unit is Urban land. The areas are covered by houses, streets, driveways, buildings, and parking lots. Uncovered areas are mainly lawns, vacant lots, or playgrounds. These are areas of Albany soil, but they are so small that it was not practical to map them separately. Included in mapping, and making up about 15 percent of the unit, are areas of Ocilla, Plummer, and Pelham soils. Urban land makes up as much as 80 percent or as little as 10 percent of a few mapped areas.

Areas where the soil has been modified by grading and shaping are not so extensive in the older communities as in the newer ones. Excavating below the original surface layer and spreading this material over adjacent soils is common. Soil material dug from drainage ditches is often used as fill in low areas. In undrained areas, the water table is 12 to 30 inches below the surface for 1 or 2 months in most years. Drainage systems have been established in many areas, however, and the depth to the water table depends on the drainage system.

The present land use precludes the use of the Albany soil for cultivated crops or improved pasture.

This map unit has not been assigned to a capability subclass.

3—Alpin sand, 0 to 5 percent slopes. This excessively drained, nearly level to gently sloping soil is on ridges, knolls, and broad upland areas. Slopes are smooth to broken.

Typically, the surface layer is dark gray sand about 4 inches thick. The subsurface layer, extending to a depth of about 55 inches, is very pale brown sand. White mottles and splotches are in the lower part. The underlying material extending to 90 inches or more is white sand that has thin brownish yellow bands or lenses.

Included with this soil in mapping are small areas of Kershaw, Ortega, Blanton, and Troup soils that are on the same slope position as this Alpin soil. A few areas of these soils are also on slopes ranging to about 12 percent. Small areas are on foot slopes or side slopes where limestone is within 80 inches of the surface and occasionally outcrops at the surface. These inclusions make up less than 15 percent of the map unit.

The water table of this Alpin soil is below a depth of 80 inches. Available water capacity is low to very low, and permeability is very rapid. Natural fertility is low.

Native trees include longleaf pine, turkey oak, bluejack oak, and blackjack oak; the understory includes honeysuckle, pineland threeawn, and running oak.

This soil has very severe limitations for cultivated crops. Droughtiness and rapid leaching of plant nutrients reduce the potential yields of suited crops. Row crops should be planted on the contour. Crop rotations should include close-growing plants at least three-fourths of the time. Soil-improving crops and crop residue should be used to protect the soil from erosion. Irrigation of suitable crops is usually feasible where water is readily available.

The soil is moderately suited to pastures and hay crops. Deep-rooting plants such as coastal bermudagrass and bahiagrasses are well suited, but yields are reduced by periodic droughts. Regular fertilizing and liming are needed. Grazing should be controlled to help plants maintain vigor.

Potential is moderately high for pine trees on this soil. Equipment use limitations and seedling mortality are management concerns. Slash and loblolly pine are the best suited trees to plant for commercial woodland production.

This Alpin soil is in capability subclass IVs.

4—Arents, 0 to 5 percent slopes. This soil is scattered throughout most of the county but is most

common near urban areas. Most areas are former low places that have been filled with sandy, loamy, and clayey materials.

The texture and thickness of the layers of this soil are highly variable within short distances. Typically, the surface layer is a mixture of brown, yellow, red, and gray loamy fine sand about 20 inches thick. The next layer, to about 30 inches, is gray sandy clay loam that has brown and yellow mottles. The next layer, to 45 inches is light gray clay that has yellow and red mottles. The next layer, to 50 inches, is stratified brown sandy loam and gray clay. The undisturbed soil begins at a depth of about 50 inches. To about 60 inches is very dark grayish brown fine sand, to 75 inches is gray fine sand, and to about 80 inches or more is light brownish gray fine sand.

Included with this soil in mapping are small areas where the soil has been excavated to below natural ground level and areas of Blanton, Alpin, Lakeland, Troup, Lucy, Orangeburg, Albany, and Norfolk soils. Also included are areas used as trench type sanitary landfills. These areas are more highly variable in their composition. Solid waste materials such as plastic, wood, paper, metal, or glass comprise 50 to 80 percent of these areas.

The water table of this Arents soil is at a depth of 60 to 80 inches in most areas and below 80 inches in many areas. Available water capacity and permeability are variable within short distances.

Native plants on this soil include primarily weeds, a few scrubs, and pine trees.

This soil has very severe limitations for cultivated crops. Because of the variability of the composition and thickness of the overburden, rating this soil is difficult for cultivated crops. Areas with thin layers of overburden can be used with proper management.

This soil is well suited to improved pasture grasses. Seedbed preparation may be a problem because of a clayey surface in some places; however, after grasses are established, good yields can be expected with proper management.

This soil has a high potential for pine trees. Plant competition is the main management concern. Slash and loblolly pine are the best suited trees to plant for commercial woodland production.

This Arents soil is in capability subclass IVs.

5—Blanton fine sand, 0 to 5 percent slopes. This nearly level to gently sloping, moderately well drained soil is on small to large areas of the uplands.

Typically, the surface layer is dark grayish brown fine sand about 7 inches thick. The subsurface layer, extending to a depth of 52 inches, is brown, light yellowish brown, and very pale brown fine sand. The subsoil is sandy clay loam to a depth of 80 inches or more—the upper 10 inches is brownish yellow that has reddish yellow mottles, and the lower 18 inches is light brownish gray that has red and strong brown mottles.

Included with this soil in mapping are small areas of Troup, Kershaw, Chipley, Albany, and Norfolk soils. These inclusions make up 15 to 20 percent of the map unit.

This Blanton soil has a water table that is perched above the subsoil for less than a month during wet seasons. In other seasons the water table is below 72 inches. The available water capacity is very low to low in the surface and subsurface layer and medium in the subsoil. Permeability is rapid in the surface and subsurface layers and moderate in the subsoil. Natural fertility is low.

This soil has severe limitations for most cultivated crops. Droughtiness and rapid leaching of plant nutrients limit the choice of plants and reduce potential yields of suited crops. Row crops should be planted on the contour. The crop rotation should include close-growing cover crops at least two-thirds of the time. Soil-improving cover crops and crop residue should be used to protect the soil from erosion. Irrigating high value crops is usually feasible where water is readily available.

The soil is moderately well suited to pasture and hay crops. Coastal bermudagrass and improved bahiagrass are well suited but yields are reduced by periodic droughts. Grasses respond to regular fertilizing and liming. Grazing should be controlled to maintain plant vigor and a good ground cover.

The potential is moderately high for pine trees. Equipment use limitations, seedling mortality, and plant competition are management concerns. Slash and longleaf pine are the best suited trees to plant for commercial wood production.

This Blanton soil is in capability subclass IIIs.

6—Bonifay fine sand, 0 to 5 percent slopes. This well drained, nearly level to gently sloping soil is on upland ridges. Slopes are smooth and generally uniform.

Typically, the surface layer is dark grayish brown fine sand about 8 inches thick. The subsurface layer is fine sand, to a depth of about 18 inches, and loamy fine sand, to a depth of 42 inches. The upper 10 inches is yellowish brown, the next 13 inches is brownish yellow, the lower 11 inches is yellow. The upper part of the subsoil to about 53 inches is yellowish brown sandy clay loam and reticulately mottled red, white, yellow, and brown sandy clay in the lower part to 80 inches or more.

Included with this soil in mapping are small areas of Fuquay, Wagram, Troup, Blanton, and Norfolk soils. Also included in mapping are small areas where the subsoil is slightly above 40 inches. These inclusions make up less than 20 percent of this map unit.

Available water capacity for this Bonifay soil is low in the surface and subsurface layers and medium in the subsoil. Permeability is rapid in the surface and subsurface layers, moderate in the upper part of the subsoil, and moderately slow in the lower part. A water table is perched above the subsoil for less than 60 days in most years. Natural fertility is low.

The native trees on this soil include live oak, slash pine, and hickory. The understory consists of dogwood, brackenfern, switchgrass, and panicum.

This soil has severe limitations for cultivated crops. Droughtiness and rapid leaching of plant nutrients limit the choice of plants and reduce potential yields of suitable crops. Row crops should be planted on the contour. The crop rotations should include close-growing, soil-improving crops on the surface at least two-thirds of the time. These soil-improving crops and all crop residue should be used to protect the soil from erosion. Lime and fertilizer should be applied as needed. Irrigating such high value crops as watermelons and tobacco is usually feasible where water is readily available.

The soil is moderately suited to improved pasture. Deep-rooting plants such as bermudagrass and bahiagrass are well adapted. They grow well and produce good ground cover when the soil is limed and fertilized as needed. Controlled grazing helps maintain vigorous plants. Yields are occasionally reduced by extended severe droughts.

This soil has moderately high potential for pine trees. Equipment use limitations, plant competition, and seedling mortality are management concerns. Slash and loblolly pine are the best suited trees to plant for commercial woodland production.

This Bonifay soil is in capability subclass IIIs.

7—Chaires fine sand. This nearly level, poorly drained soil is on broad flatwoods. Slopes are 0 to 2 percent.

Typically, the surface layer is dark brown fine sand about 7 inches thick. The subsurface layer is fine sand to a depth of 28 inches—the upper 10 inches is dark grayish brown, and the lower 11 inches is light gray. The upper part of the subsoil, to about 54 inches, is very dark brown, dark reddish brown, dark brown, and dark yellowish brown fine sand. The lower part of the subsoil is gray and light greenish gray sandy clay loam that extends to a depth of 80 inches or more.

Included with this soil in mapping are small areas of Talquin, Leon, Pelham, Sapelo, Plummer, and Lutterloh soils. These inclusions make up less than 20 percent of the map unit.

This Chaires soil has a water table at a depth of 10 inches for 1 to 3 months during high rainfall and within 20 to 40 inches for 6 months or more in most years. Permeability is rapid in the surface and subsurface layers, moderate in the upper part of the subsoil, and moderately slow to slow in the lower part. Natural fertility is low. Available water capacity is very low in the surface and subsurface layers and medium in the subsoil.

The native trees include scattered bluejack, blackjack, laurel oak, water oak, longleaf pine, and sweetgum; in the understory are sawpalmetto, dwarf blueberry, greenbrier, fetterbush, gallberry, bromegrass, and pineland threeawn.

This soil has very severe limitations for cultivated crops. Because of wetness and sandy texture, good water control and soil-improving crops are necessary. A water control system that removes excess water after heavy rainfall and serves to supply subsurface irrigation during dry seasons is needed.

This soil is well suited for pasture and hay crops; however, a good water control system is needed to remove excess water. Regular applications of fertilizer and lime are needed. Controlled grazing helps maintain vigorous plant growth.

This soil has a moderately high potential for pine trees. Slash pines are the best suited trees to plant for commercial woodland production. Equipment use limitations, seedling mortality, and plant competition are management concerns. Planting the trees on beds lowers the effective depth of the water table.

This Chaires soil is in the capability subclass IVw.

8—Chipley fine sand, 0 to 2 percent slopes. This somewhat poorly drained, nearly level soil is on moderately low uplands. Slopes are smooth.

Typically, the surface layer is fine sand about 15 inches thick. The upper 5 inches is very dark gray and the lower 10 inches is dark grayish brown. The underlying layer is fine sand to a depth of 80 inches or more—the upper 8 inches is brown that has gray mottles; the next 14 inches is brownish yellow that has reddish yellow and gray mottles; and the lower 43 inches is brownish yellow, light brownish gray, and white.

Included with this soil in mapping are small areas of Rutlege, Ortega, and Albany soils. Ortega soils are on slightly higher positions and Rutlege soils in low positions. These inclusions make up less than 20 percent of the map unit.

This Chipley soil has a water table within a depth of 20 to 40 inches for 2 to 4 months in most years. The available water capacity is low in the surface layer and very low in the other layers. Permeability is rapid. Natural fertility is low.

Native trees and understory consist mostly of slash and longleaf pine, scattered post, turkey oak, blackjack oak, and pineland threeawn.

This soil has severe limitations for cultivated crops. Droughtiness and rapid leaching of plant nutrients limit the choice of crops and reduce potential yields of suitable crops. The presence of a water table within 20 to 40 inches of the surface in wet seasons affects the availability of water in the root zone by providing water through capillary rise to supplement the low available water capacity. In very dry seasons the water table drops well below the root zone and little capillary water is available to plants. The crop rotation should include close-growing crops to cover the soil at least two-thirds of the time. Lime and fertilizer should be applied as needed. Soil-improving cover crops and all crop residue should be used to protect the soil from erosion. Irrigating high value crops is usually feasible where water is readily available. Tile or other drainage methods are needed for some crops that could be damaged by a high water table during the growing season.

The soil is moderately well suited for pastures and hay. Suitable plants include coastal bermudagrass and bahiagrasses. The soils often require fertilizer and lime. Controlled grazing maintains vigorous plants.

The potential for trees on this soil is high. Equipment use limitations, seedling mortality, and plant competition are management concerns. Slash and loblolly pine are the best suited trees to plant for commercial woodland production.

This Chipley soil is in capability subclass IIIs.

9—Dorovan mucky peat. This nearly level, very poorly drained soil is in depressional areas and on flood plains of tributaries of major streams. Slopes are less than 1 percent.

Typically, the surface layer is black mucky peat about 5 inches thick. The muck subsurface layer extends to a depth of 65 inches—the upper 11 inches is black; the lower 49 inches is very dark brown. The substratum is very dark gray sandy loam to about 69 inches. Below this black sand extends to a depth of 80 inches or more.

Included with this soil in mapping are small areas of Pamlico, Pelham, Plummer, and Rutlege soils that are in the same position as this Dorovan soil. These inclusions make up less than 15 percent of the map unit.

The water table of this Dorovan soil is above the surface 5 to 8 months in most years and within a depth of 10 inches other times. Available water capacity is very high, and permeablility is moderate in the organic layers and rapid in the substratum. Organic matter content is very high.

Native trees consist mostly of water-tolerant hardwoods such as water oak, sweetbay, blackgum, sweetgum, red maple, black willow, smooth alder, and cypress. Around the perimeter of areas, the plants include pond pine, shortleaf pine, and slash pine. Almost all areas are still in native plants. They provide a wildlife habitat.

This soil has very severe limitations for cultivated crops. Because of wetness, this soil is not suitable for cultivation, but with adequate water control, crops and most vegetable crops can be grown. A well designed and maintained water control system should remove excess water when crops are grown and should keep the soils saturated with water at all other times. Crops on this soil respond well to fertilizers. Water-tolerant cover crops can be grown on the soils when row crops are not planted. To help improve the soil, all crop residues and cover crops should be incorporated into the soil.

Most improved grasses and clovers grow well on this soil when water is controlled. Water control should maintain the water table near the surface to prevent excessive oxidation of the organic horizons. Fertilizers high in potash, phosphorus, and minor elements are needed. Controlled grazing helps maintain the vigor of plants.

The potential of this soil for woodland is low. Seedling mortality and equipment use limitations are management concerns. Baldcypress is the best suited tree to plant for commercial woodland production.

This Dorovan soil is in capability subclass IVw.

10—Dothan loamy fine sand, 2 to 5 percent slopes. This well drained gently sloping soil is on uplands. Slopes are generally smooth.

Typically, the surface layer is loamy fine sand about 13 inches thick. The upper 5 inches is brown and the lower 8 inches is yellowish brown. The subsoil extends to a depth of 80 inches or more. The upper part of the subsoil is yellowish brown fine sandy loam to a depth of 19 inches; the next part is yellowish brown sandy clay loam to about 38 inches; below this is reticulately mottled brown, yellow, red, and gray, sandy clay loam to a depth of 80 or more inches. More than 5 percent plinthite is above a depth of 60 inches.

Included with this soil in mapping are small areas of Fuquay, Norfolk, and Wagram soils. Also included are small areas that have 5 percent or more plinthite above a depth of 24 inches. These inclusions make up less than 20 percent of the map unit.

This Dothan soil has a perched water table briefly during wet periods above the reticulately mottled part of the subsoil. The available water capacity is low in the surface and subsurface layers and medium in the subsoil. Permeability is moderately rapid in the surface and subsurface layers, moderate in the upper part of the subsoil, and moderately slow in the lower part. Natural fertility is moderate.

Native plants include longleaf pine, shortleaf pine, loblolly pine, slash pine, live oak, wild cherry, hickory, and white oak. The understory includes sassafras, briers, ferns, vines, and pineland threeawn.

This soil has moderate limitations for cultivated crops. The types of crops are somewhat limited by occasional wetness. Crops such as corn and peanuts are suited when the soil is properly managed. Because of the hazard of erosion, terraces that have stabilized outlets and contour cultivation of row crops in alternate strips of cover crops are needed. The crop rotation should include cover crops at least half the time. To reduce the erosion hazard, crop residues and the soil-improving cover crops should be left on the surface. Tile helps maintain good drainage for such crops as tobacco, which could be damaged by the slight wetness. A good seedbed, fertilizer, and lime are needed.

The soil is well suited to pasture and hay crops. Improved pasture plants such as clover, coastal bermudagrass, and improved bahiagrass are well suited. Fertilizing, liming, and controlled grazing help maintain vigorous plants and a good ground cover.

This soil has high potential for pine trees. Plant competition is a management concern. Slash and loblolly pine are the best suited trees to plant for commercial woodland production.

This Dothan soil is in capability subclass IIe.

11—Dothan loamy fine sand, 5 to 8 percent slopes. This well drained, sloping soil is on hillsides leading to drainageways. Slopes are generally smooth.

Typically, the surface layer is dark grayish brown loamy fine sand about 6 inches thick. The subsurface layer is yellowish brown fine sandy loam about 10 inches thick. The upper part of the subsoil is brownish yellow sandy clay loam to a depth of 64 inches, and the lower part is mottled brownish yellow, yellow, red, light gray, and strong brown sandy clay loam that extends to a depth of 80 inches or more. More than 5 percent plinthite is within a depth of 60 inches.

Included with this soil in mapping are small areas of Fuquay, Norfolk, and Wagram soils. Also included in mapping are small areas of moderately to severely eroded areas and areas where 5 percent or more plinthite occurs at a depth of about 24 inches.

This Dothan soil has a perched water table briefly during wet periods above the reticulately mottled subsoil. The available water capacity is low in the surface and subsurface layers and medium in the subsoil. Permeability is moderately rapid in the surface and subsurface layers, moderate in the upper part of the subsoil, and moderately slow in the lower part. Natural fertility is low.

Native plants include longleaf pine, shortleaf pine, loblolly pine and slash pine, live oak, hickory, and white oak. The understory includes sassafras, briers, ferns, vines, and pineland threeawn.

This soil has severe limitations for cultivated crops. Because of the hazard of erosion, this soil is only moderately suitable for crops such as corn, soybeans, and peanuts. The types of crops are somewhat limited by occasional wetness.

Necessary erosion control measures for this soil include terraces that have stabilized outlets, row crops planted on contour cultivation, and crop rotations that include close-growing crops on the soil at least two-thirds of the time. Soil-improving cover crops and all crop residues should be used to protect the soil from erosion. Tile or open drainage intercepts seepage water from higher areas. A good seedbed, fertilizer, and lime are needed.

This soil is well suited to pasture. Coastal bermudagrass and improved bahiagrasses produce well when properly managed. Controlled grazing maintains vigorous plants for a good soil cover.

This soil has high potential for pine trees. Plant competition is a management concern. Slash and loblolly pine are the best suited trees to plant for commercial woodland production.

This Dothan soil is in capability subclass IIIe.

12—Faceville sandy loam, 2 to 5 percent slopes. This well drained, gently sloping soil is on uplands.

Typically, the surface layer is dark grayish brown sandy loam about 8 inches thick. The subsurface layer is strong brown sandy loam about 7 inches thick. The subsoil is sandy clay to a depth of 80 inches or more—the upper 33 inches is yellowish red, the next 13 inches is yellowish red mottled strong brown, and the lower 19 inches is mottled yellowish red, reddish yellow, light gray, white, and yellowish brown.

Included with this soil in mapping are small areas of Orangeburg, Dothan, Norfolk, Fuquay, Wagram, and Lucy soils. Also included are small areas that have about 5 to 15 percent smooth hard concretions on the surface. These inclusions make up less than 20 percent of the map unit.

The water table of this Faceville soil is below a depth of 72 inches. Available water capacity is low in the surface and subsurface layers and medium in the subsoil. Permeability is rapid in the surface and subsurface layers and moderate in the subsoil. Natural fertility is moderate.

Native trees include longleaf pine, shortleaf pine, loblolly pine, slash pine, live oak, hickory, beech, wild cherry, and white oak. The understory includes briers, ferns, sassafras, dogwood, and pineland threeawn.

This soil has moderate limitations for cultivated crops. Such crops as corn and soybeans grow well when properly managed. Because of the hazard of erosion, necessary controls include terraces that have stabilized outlets and contour cultivation of row crops. The crop rotation should include cover crops at least half the time. To reduce the hazard of erosion, soil-improving cover crops and crop residues should be used to protect the soil from erosion. A good seedbed, fertilizer, and lime are necessary.

The soil is well suited to pasture and hay crops. Pasture grasses such as tall fescue, coastal bermudagrass, and improved bahiagrass are well suited. Clovers and other legumes are also suited. Fertilizing, liming, and controlled grazing help maintain vigorous plants for a good soil cover.

This soil has moderately high potential for pine trees. Plant competition is a management concern. Slash and loblolly pine are the best suited trees to plant for commercial woodland production.

This Faceville soil is in capability subclass IIe.

13—Faceville sandy loam, 5 to 8 percent slopes. This well drained, sloping soil is on hillsides leading to drainageways and in surrounding sinkholes and depressional areas. Slopes are generally smooth.

Typically, the surface layer is dark grayish brown sandy loam about 6 inches thick. The subsurface layer is strong brown sandy loam about 7 inches thick. The subsoil is sandy clay and clay to a depth of 60 inches or more—the upper 12 inches is yellowish red, the next 29 inches is red, and the next 8 inches is red that has yellowish and brownish mottles. Below this is sandy clay loam mottled yellow, white, strong brown, red, and dark red that extends to 80 inches or more.

Included with this soil in mapping are small areas of Dothan, Orangeburg, Fuquay, Norfolk, and Lucy soils.

Also included in mapping are small areas of soils that are moderately to severely eroded, some of which have 5 to 15 percent ironstone nodules on the surface. These inclusions make up about 20 percent of the map unit.

The water table of this Faceville soil is below 72 inches. The available water capacity is low in the surface and subsurface layers and medium in the subsoil. Permeability is rapid in the surface and subsurface layers and moderate in the subsoil. Natural fertility is moderately low.

Native trees include longleaf pine, shortleaf pine, loblolly pine, slash pine, live oak, hickory, and white oak. The understory includes sassafras, briers, ferns, vines, and pineland threeawn.

This soil has moderate limitations for cultivated crops. Such crops as corn and soybeans grow well when properly managed. Because of the hazard of erosion, necessary controls include terraces that have stabilized outlets and contour cultivation of row crops. The crop rotation should include cover crops at least two-thirds of the time. Soil-improving cover crops and crop residues should be used to reduce erosion. A good seedbed, fertilizer, and lime are necessary.

The soil is well suited to pasture and hay crops. Pasture grasses such as tall fescue, coastal bermudagrass, and improved bahiagrass are well suited. Clovers and other legumes are also suited and grow well when properly managed. Fertilizing, liming, and controlled grazing maintain vigorous plants and a good soil cover.

This soil has moderately high potential for pine trees. Plant competition is a management concern. Slash and loblolly pine are the best suited trees to plant for commercial woodland production.

This Faceville soil is in capability subclass IIIe.

14—Faceville sandy loam, 8 to 12 percent slopes. This well drained, strongly sloping soil is on upland hillsides.

Typically, the surface layer is dark grayish brown sandy loam about 4 inches thick. The subsurface layer is strong brown sandy loam about 8 inches thick. The upper part of the subsoil, to a depth of about 43 inches, is yellowish red sandy clay; and the lower part, to about 60 inches, is yellowish red sandy clay that has yellowish and brownish mottles. Beneath the subsoil is coarsely mottled yellowish brown, red, brownish yellow, strong brown, and white sandy clay to 80 inches or more. This lower mottled layer contains about 10 percent smooth hard concretions.

Included with this soil in mapping are small areas of Orangeburg, Dothan, Fuquay, and Norfolk soils. Also included are small areas of moderately eroded and severely eroded soils, which have 15 to 25 percent smooth hard concretions on the surface. These inclusions make up about 20 percent of the map unit.

The water table of this Faceville soil is below a depth of 72 inches. The available water capacity is low in the surface and subsurface layers and is medium in the subsoil. Permeability is rapid in the surface and subsurface layers and moderate in the subsoil. Natural fertility is low.

Native trees include shortleaf and longleaf pine, red oak, live oak, white oak, and hickory. The understory consists mainly of briers and bahiagrass.

This soil has very severe limitations for cultivated crops. It is poorly suited to row crops because slopes are too steep to be safely cultivated or effectively terraced. The practical erosion control measure is an adequate plant cover. If row crops are grown, planting should be in narrow strips on the contour. The crop rotation should keep the soil under close-growing plants at least three-fourths of the time. Crop residue should be left on the surface. Both row crops and close-growing crops require lime and fertilizer.

The soil is moderately well suited to improved pasture. Tall fescue, coastal bermudagrass, and improved bahiagrass are well suited. Fertilizing, liming, and controlled grazing are needed for vigorous plants and to assure a complete plant cover for erosion control.

This soil has moderately high potential for pine trees. Plant competition, equipment limitations, and erosion hazard are management concerns. Slash and loblolly pine are the best suited trees to plant for commercial woodland production.

This Faceville soil is in capability subclass IVe.

15—Foxworth sand, 0 to 5 percent slopes. This moderately well drained, nearly level to gently sloping soil is on rolling upland sand hills around the perimeter of coastal flatwoods.

Typically, the surface layer is gray sand about 4 inches thick. The underlying layers are sand to a depth of 80 inches or more. The first 5 inches is pale brown sand, the next 37 inches is very pale brown sand that has yellow mottles, the next 8 inches is white sand, and the lower 26 inches is brownish yellow and brown sand.

Included with this soil in mapping are small areas of Ortega soil on the same slope positions and Talquin, Chipley, and Albany soils in the lower positions. Also included are small areas of soils that have an organic stained layer at depths of 75 to 80 inches. These inclusions make up less than 20 percent of the map unit.

The water table of this Foxworth soil is between depths of 40 to 72 inches for 1 to 3 months during most years. Available water capacity is low to very low. Permeability is very rapid. Natural fertility is low.

Native trees are dominantly blackjack oak and longleaf pine that have an understory of pineland threeawn.

This soil has severe limitations for crops. Droughtiness and rapid leaching of plant nutrients limit the choice of plants and reduce potential yields of suited crops. Row crops should be planted on the contour. The crop rotation should include close-growing crops on the soil at least two-thirds of the time. Crops respond well to fertilizer and lime. Soil-improving cover crops and crop

residue should be used to protect the soil from erosion. Irrigating high value crops is usually feasible where water is readily available.

This soil is moderately well suited to pasture and hay. Plants such as coastal bermudagrass and bahiagrass are well suited. They require fertilizer and lime. Controlled grazing is needed to maintain vigorous plants.

This soil has a moderately high potential for longleaf and slash pine. Slash and loblolly pine are the best suited trees to plant for commercial woodland production. Equipment use limitations, seedling mortality, and plant competition are management concerns.

This Foxworth soil is in capability subclass IIIs.

16—Fuquay fine sand, 0 to 5 percent slopes. This well drained, nearly level to gently sloping soil is on uplands. Slopes are generally smooth to concave.

Typically, the surface layer is grayish brown fine sand about 7 inches thick. The subsurface layer is 30 inches thick—7 inches of yellowish brown and brownish yellow fine sand, 7 inches of yellowish brown fine sand, and 16 inches of yellowish brown loamy fine sand. The upper part of the subsoil, to about 57 inches, is yellowish brown sandy clay loam. The lower part that extends to 80 inches or more is reticulately mottled red, yellowish brown, and light gray sandy clay loam and sandy clay. The subsoil contains about 8 percent plinthite.

Included with this soil in mapping are small areas of Bonifay and Wagram soils. Also included in mapping are areas of 5 to 8 percent slopes. These inclusions make up less than 20 percent of the map unit.

This Fuquay soil has a perched water table briefly during wet periods above the reticulately mottled lower subsoil. The available water capacity is low in the surface and subsurface layers and medium in the subsoil. Permeability is rapid in the surface and subsurface layers, moderate in the upper part of the subsoil, and slow in the lower part. Natural fertility is moderately low.

This soil has moderate limitations for cultivated crops. This soil can be cultivated safely with good farming methods, but droughtiness and rapid leaching of plant nutrients from the thick sandy surface layer limit the choice of crops and potential yields. Corn, soybeans, peanuts, and tobacco can be grown. Row crops should be planted on the contour. The crop rotation should include cover crops at least half the time. Soil-improving cover crops and residues of crops should be used to protect the soil from erosion. A good seedbed, fertilizer, and lime are needed.

The soil is well suited to pasture. Coastal bermudagrass (fig. 5) and bahiagrasses are well suited and respond well to fertilizer and lime. Controlled grazing helps maintain vigorous plants.

The potential is moderately high for pine trees. Equipment use limitations, seeding mortality, and plant competition are management concerns. Slash and loblolly pine are the best suited trees to plant for commercial woodland production.

This Fuquay soil is in capability subclass IIs.

17—Fuquay fine sand, 5 to 8 percent slopes. This well drained, sloping soil is on uplands. Slopes are generally smooth.

Figure 5.—Fuquay fine sand, 0 to 5 percent slopes, produces good yields of coastal bermudagrass hay when properly managed.

Typically, the surface layer is dark grayish brown fine sand about 7 inches thick. The subsurface layer is 21 inches thick—9 inches of brownish yellow fine sand and 12 inches of yellowish brown fine sand. The upper part of the subsoil, to a depth of about 32 inches, is yellowish brown sandy loam; to about 40 inches is yellowish brown sandy clay loam; the lower part is mottled reddish yellow, light gray, brownish yellow, and red sandy clay loam that extends to a depth of 80 inches or more. The subsoil contains about 6 percent plinthite.

Included with this soil in mapping are small areas of Dothan, Wagram, and Lucy soils. These inclusions make up less than 20 percent of the map unit.

This Fuquay soil has a perched water table briefly during wet periods above the reticulately mottled lower subsoil. The available water capacity is low in the surface and subsurface layers and medium in the subsoil. Permeability is rapid in the surface and subsurface layers, moderate in the upper part of the subsoil, and slow in the lower part. Natural fertility is low.

This soil has severe limitations for cultivated crops. Droughtiness and rapid leaching of plant nutrients severely limit the suitability of this soil for most row crops. The steepness of slopes increases the hazard of erosion and makes cultivation more difficult. Cultivated row crops should be planted on the contour. The crop rotation should keep the soil under close-growing crops at least two-thirds of the time. Crops respond well to fertilizer and lime. Soil-improving cover crops and residues of all other crops should be used to protect the soil from erosion.

The soil is moderately well suited to pastures. Deep-rooting plants such as Coastal bermudagrass and bahiagrass are well suited. Steepness of slope increases the erosion hazard and reduces the potential yields. Good stands of grass can be produced by fertilizing and liming. Controlled grazing permits the plants to maintain their vigor and provide soil cover.

The potential is moderately high for pine trees on this soil. Equipment use limitations, seedling mortality, and plant competition are the main management concerns. Slash and loblolly pine are the best suited trees to plant for commercial woodland production.

This Fuquay soil is in capability subclass IIIe.

18—Kershaw sand, 0 to 5 percent slopes. This nearly level to gently sloping, excessively drained soil is on small to large uplands.

Typically, the surface layer is grayish brown sand about 7 inches thick. The underlying layers are sand to a depth of more than 80 inches—the upper 4 inches is very pale brown and the rest is yellow.

Included with this soil in mapping are small areas of Ortega, Lakeland, Troup, and Alpin soils. These inclusions make up less than 15 percent of the map unit.

This Kershaw soil does not have a water table within 80 inches of the surface. The available water capacity is very low throughout. The natural fertility is low. Permeability is very rapid, and runoff is slow.

Native plants include turkey oak, longleaf pine, blackjack oak, and bluejack oak. The understory includes pineland threeawn and scattered wild lupine.

This soil is not suitable for cultivated field crops.

The soil has only fair suitability for pasture. Grasses such as coastal bermudagrass and bahiagrass make only fair growth if fertilized. Clovers are not suited to this soil.

Potential is low for pine trees. Seedling mortality is the major management concern. Sand pines are the best suited trees to plant for commercial woodland production.

This Kershaw soil is in capability subclass VIIs.

19—Kershaw sand, 5 to 8 percent slopes. This sloping, excessively drained soil is on small to large hillsides on uplands.

Typically, the surface layer is dark grayish brown sand about 5 inches thick. The underlying layers are yellow sand to a depth of 80 inches or more.

Included with this soil in mapping are small areas of Lakeland, Alpin, and Troup soils on the same general slopes as this Kershaw soil and Ortega and Blanton soils on side and foot slopes. These inclusions make up less than 20 percent of the map unit.

This Kershaw soil does not have a water table within a depth of 80 inches. The available water capacity is very low throughout. The natural fertility is low. Permeability is very rapid, and runoff is slow.

Native trees include turkey oak, blackjack oak, and longleaf pine. The understory includes pineland threeawn, wild lupine, and sparkleberry.

This soil is not suited for cultivated field crops.

The soil has only fair suitability for pasture. Grasses such as coastal bermudagrass and bahiagrass make only fair growth if fertilized. Clovers are not suited to this soil.

This soil has low potential productivity for pine trees. Seedling mortality is the major management concern. Sand pine are the best suited trees to plant for commercial woodland production.

This Kershaw soil is in the capability subclass VIIs.

20—Kershaw-Urban land complex, 0 to 5 percent slopes. This map unit consists of Kershaw sand and Urban land in areas that are so intermingled that separating them was not practical at the scale used for mapping.

About 40 to 70 percent of the map unit consists of the nearly level to gently sloping Kershaw soil or soil that has been reworked or reshaped but is still recognizable as Kershaw soil. Typically, Kershaw soil has a grayish brown sand surface layer about 7 inches thick. Very pale brown, yellow, and pale yellow sand extends to a depth of 80 inches or more. The water table is below a depth of 80 inches throughout the year.

About 15 to 50 percent of the unit is Urban land. Urban land consists of areas that are covered by

houses, streets, driveways, buildings, and parking lots. Uncovered areas consist of the Kershaw soil mainly in lawns, vacant lots, or playgrounds. Included in mapping, and making up about 15 percent of the unit, are areas of Lakeland, Ortega, and Troup soils. Urban land makes up as much as 80 percent or as little as 10 percent of a few mapped areas.

Areas where the soil has been modified by grading and shaping are not so extensive in the older communities as in the newer ones. Excavating below the original surface layer and spreading this material over the adjacent soil or using it to shape building sites is common.

The present land use precludes the use of the Kershaw soil for cultivated crops, pasture, or forest.

This map unit was not assigned to a capability subclass.

21—Lakeland sand, 0 to 5 percent slopes. This excessively drained, nearly level to gently sloping soil is in small to large areas on uplands. Slopes are smooth.

Typically, the surface layer is grayish brown sand 5 inches thick. The underlying layers are light yellowish brown and reddish yellow sand that extends to 80 inches or more.

Included with this soil in mapping are small areas of Kershaw and Troup soils that are on the same position as this Lakeland soil. Also included are small areas where the slope exceeds 5 percent. These inclusions make up less than 25 percent of the map unit.

This Lakeland soil does not have a water table within 80 inches of the surface throughout the year. The available water capacity is low. Permeability is very rapid, and there is little or no runoff. Natural fertility is very low.

Native plants consist of bluejack oak, post oak, turkey oak, longleaf pine, creeping bluestem, lopsided indiangrass, splitbeard bluestem, broomsedge bluestem, and pineland threeawn.

This soil has very severe limitations for cultivated crops. Droughtiness and rapid leaching of plant nutrients reduce potential yields of suitable crops. Row crops should be planted on the contour. The crop rotation should keep the soil under close-growing plants at least three-fourths of the time. Soil-improving crops and all crop residue should be used to protect the soil from erosion. A few crops produce good yields without irrigation. Irrigating these crops is usually feasible where water is readily available.

This soil is moderately suited for pasture and hay crops. Deep-rooting plants such as coastal bermudagrass and bahiagrass are well suited, but yields are reduced by periodic droughts. Regular fertilizing and liming are needed. Controlled grazing permits plants to maintain vigor.

This soil has moderately high potential for pine trees. Equipment use limitations, seedling mortality, and plant competition are management concerns. Slash and loblolly pine are the best suited trees to plant for commercial woodland production.

This Lakeland soil is in capability subclass IVs.

22—Leefield loamy sand. This somewhat poorly drained, nearly level soil is along drainageways and on low foot slopes of hillsides. Slopes are smooth to concave, ranging from 0 to 2 percent.

Typically, the surface layer is very dark grayish brown loamy sand about 10 inches thick. The subsurface layer is loamy sand about 26 inches thick—the top 9 inches is grayish brown and the lower 17 inches is yellow that has brownish and gray mottles. The subsoil extending to a depth of 80 inches or more is yellowish brown sandy clay loam mottled gray and red.

Included with this soil in mapping are small areas of Albany soils. These inclusions make up less than 15 percent of the map unit.

This Leefield soil has a water table at depths of 18 to 30 inches for about 4 months in most years and within depths of 10 inches briefly during extended heavy rainfall periods. This soil has low available water capacity in the surface and subsurface layers and medium in the subsoil. Permeability is rapid in the surface and subsurface layers, moderate in the upper part of the subsoil, and moderately slow in the lower part. Natural fertility is low.

Native trees include laurel oak, sassafras, live oak, pin oak and slash pine, loblolly pine, and longleaf pine. In the understory are honeysuckle, waxmyrtle, greenbrier, and sawpalmetto.

This soil has moderate limitations for cultivated crops. These crops are limited by the water table at or near the surface much of the time. Crops such as corn and soybeans are suitable only if soils are properly drained. Tile drains or open ditches help protect crops from wetness. Row crops should be rotated with cover crops that remain on the land at least half the time. Soil-improving cover crops and crop residues should be used to protect the soil from erosion. A good seedbed, fertilizer, and lime are necessary.

The soil is well suited for pasture and hay crops. Such grasses as coastal bermudagrass and bahiagrasses grow well with good management. White clover and other legumes are moderately suitable. Fertilizer, lime, and controlled grazing help to maintain plant vigor.

This soil has moderately high potential for pine trees. The management concerns are equipment use limitations, seedling mortality, and plant competition. Loblolly and slash pine are the best suited trees to plant for commercial woodland production.

This Leefield soil is in capability subclass IIw.

23—Leon sand. This poorly drained, nearly level soil is in the flatwoods. Slopes are less than 2 percent and smooth to concave.

Typically, the surface layer is dark gray sand about 6 inches thick. The subsurface layer is sand about 19 inches thick. The upper 7 inches is light brownish gray sand, and the lower 12 inches is light gray sand. The

upper part of the subsoil, to a depth of 29 inches, is black loamy sand and very slightly cemented; to about 41 inches, it is dark reddish brown sand. Below the subsoil is dark yellowish brown sand that extends 80 inches or more.

Included with this soil in mapping are small areas of Talquin, Rutlege, and Sapelo soils. These inclusions make up less than 20 percent of the map unit.

This Leon soil has a water table at depths of 10 to 40 inches for more than 9 months during most years, and at depths less than 10 inches for 1 to 4 months in most years during periods of high rainfall. Available water capacity is very low in the surface and subsurface layers and low in the subsoil. Permeability is rapid in the surface and subsurface layers, moderate to moderately rapid in the subsoil, and very rapid in the substratum. Natural fertility is low.

Native trees include longleaf pine, slash pine, water oak, and myrtle; a thick understory includes sawpalmetto, running oak, fetterbush, gallberry, and pineland threeawn.

This soil has very severe limitations for cultivated crops. Because of wetness and sandy texture, a water control system that removes excess water after heavy rainfall and supplies subsurface irrigation during dry seasons is needed for high yields for a few suited crops.

This soil is well suited to pasture and hay crops; however, a good water control system is needed to remove excess water. Pasture and forage plants respond well to fertilizer and lime. Controlled grazing helps maintain vigorous plant growth.

This soil has moderate potential for pine trees. Slash pines are the best suited trees to plant for commercial woodland production. Equipment use limitations, seedling mortality, and plant competition are the main limitations. Planting the trees on beds lowers the effective depth of the water table.

This Leon soil is in the capability subclass IVw.

24—Lucy fine sand, 0 to 5 percent slopes. This well drained, nearly level to gently sloping soil is on upland ridges. Slopes are smooth and uniform to irregular in shape.

Typically, the surface layer is dark grayish brown fine sand 5 inches thick. The subsurface layer is fine sand and extends to a depth of 26 inches—the upper 4 inches is dark yellowish brown, the next 7 inches is dark brown, and the lower 10 inches is strong brown. The subsoil is yellowish red sandy clay loam to a depth of 80 inches or more.

Included with this soil in mapping are small areas of Orangeburg and Troup soils on the same slope positions as this Lucy soil. Small areas of Wagram and Blanton soils are on some top slopes. Also included in mapping are small areas where the surface layer is sand or loamy sand. These inclusions make up 15 percent or less of the map unit.

This Lucy soil does not have a water table within a depth of 80 inches. The available water capacity is low in the surface and subsurface layers and medium in the subsoil. Permeability is rapid in the surface and subsurface layers and moderate in the subsoil. Natural fertility is low.

The native trees include slash and longleaf pine, live oak, post oak, red oak, and dogwood trees. The understory consists of native shrubs and grasses, including huckleberry, southern dewberry, smilax, Virginia creeper, American beautyberry, muscadine grape, yaupon, and sparse pineland threeawn.

This soil has moderate limitations for cultivated crops. Droughtiness and rapid leaching of plant nutrients from the thick sandy surface layer limit the choice of crops and the potential yields of suitable crops. Such crops as corn, soybeans, peanuts, and tobacco can be grown. Row crops should be planted on the contour. The crop rotation should include cover crops at least half the time. Cover crops and crop residues should be used to protect the soil from erosion. A good seedbed, fertilizer, and lime are necessary. Irrigating high value crops such as tobacco is usually feasible where irrigation water is readily available.

The soil is well suited to pastures. Deep-rooting plants such as coastal bermudagrass and bahiagrasses are well suited and respond well to fertilizer and lime. Controlled grazing is important to maintain vigorous plants and a good cover.

The potential is moderately high for pine trees on this soil. Equipment use limitations, seedling mortality, and plant competition are management concerns. Loblolly and slash pine are the best suited trees to plant for commercial woodland production.

This Lucy soil is in capability subclass IIs.

25—Lucy fine sand, 5 to 8 percent slopes. This sloping, well drained soil is on upland hillsides.

Typically, the surface layer is dark brown fine sand about 5 inches thick. The next 8 inches is brown fine sand; extending to a depth of 30 inches is reddish yellow and strong brown fine sand. The subsoil extends to a depth of 80 inches or more—the upper 6 inches is yellowish red fine sandy loam, the next 39 inches is red sandy clay loam, and the lower 5 inches is yellowish red fine sandy loam.

Included with these soils are small areas of Orangeburg and Troup soils. These inclusions make up less than 20 percent of the map unit.

This Lucy soil has a water table below depths of 80 inches throughout the year. The available water capacity is low in the surface and subsurface layers and medium in the subsoil. Permeability is rapid in the surface and subsurface layers and moderate in the subsoil. Natural fertility is low.

Native trees include slash pine, longleaf pine, live oak, post oak, red oak, and dogwood trees. The understory consists of native shrubs and grasses, including huckleberry, southern dewberry, smilax, Virginia creeper, American beautyberry, muscadine grape, yaupon, and pineland threeawn.

This soil has severe limitations for cultivated crops. Droughtiness and rapid leaching of plant nutrients from the thick sandy surface layer severely limit the suitability of this soil for most row crops.

The steepness of slopes further limits the suitability by making cultivation more difficult and by increasing the hazard of erosion. Row crops should be planted on the contour. The crop rotation should keep the soil under close-growing crops at least two-thirds of the time. All crops respond to fertilizer and lime. Soil-improving cover crops and crop residue should be used to protect the soil from erosion.

This soil is moderately well suited to pasture. Deep-rooting plants such as coastal bermudagrass and bahiagrasses are well suited to this soil. Steepness of slope increases the erosion hazard and reduces the potential yields. Grasses respond to fertilizer and lime. Controlled grazing permits the plants to maintain their vigor and to provide good protective cover.

The potential is moderately high for pine trees. Equipment limitations, seedling mortality, and plant competition are management concerns. Slash and loblolly pine are the best suited trees to plant for commercial woodland production.

This Lucy soil is in capability subclass IIIs.

26—Lutterloh fine sand, 0 to 5 percent slopes. This somewhat poorly drained, nearly level to gently sloping soil is on broad, low upland flatwood areas. Slopes are smooth and slightly irregular.

Typically, the surface layer is grayish brown fine sand about 7 inches thick. The subsurface layer is fine sand about 52 inches thick—the upper 33 inches is mixed light gray and white, and the lower 19 inches is white. The subsoil extends below 80 inches. The upper 12 inches of the subsoil is gray very fine sandy loam and the lower 9 inches is light gray sandy clay.

Included with this soil in mapping are small areas of Chaires, Albany, and Plummer soils. Also included in mapping are small areas of similar soil that is underlain by limestone. These inclusions make up less than 20 percent of the map unit.

This Lutterloh soil has a water table that is within 20 to 30 inches of the surface for 2 to 4 months of most years. Available water capacity is very low in the surface and subsurface layers and medium in the subsoil. Permeability is rapid in the surface and subsurface layers, moderate in the upper part of the subsoil, and moderately slow to slow in the lower part. Natural fertility is low.

Native plants include waxmyrtle, gallberry, longleaf pine, bluejack oak, dogwood, greenbrier, pineland threeawn, blueberry, and brackenfern. Many areas have been planted to slash pines.

This soil has severe limitations for cultivated crops. The number of suited crops is limited unless water control measures are used. With adequate water control, such crops as corn, soybeans, and peanuts are moderately well suited. Good management includes close-growing, soil-improving crops in rotation with row crops. The close-growing crops should be on the soil at least two-thirds of the time. Soil-improving cover crops and the residue of crops should be used to protect the soil from erosion. Fertilizer and lime are needed.

These soils are moderately suited to pasture and hay crops. Coastal bermudagrass, bahiagrass, and clovers are well suited. Plants respond well to fertilizers and lime. Simple drainage removes excess water in wet seasons. Grazing control helps maintain vigorous plants.

Potential for pine trees is moderately high. Equipment use limitations during periods of high rainfall, plant competition, and seedling mortality caused by excessive or insufficient moisture are management concerns. Slash or loblolly pine are the best suited trees to plant for commercial woodland production.

This Lutterloh soil is in capability subclass IIIw.

27—Lynchburg fine sandy loam. This somewhat poorly drained, nearly level soil is in shallow depressional areas and on broad interstream divides. Slopes range from 0 to 2 percent.

Typically, the surface layer is very dark grayish brown fine sandy loam about 8 inches thick. The subsurface layer is grayish brown fine sandy loam about 10 inches thick. The subsoil is sandy clay loam to a depth of about 65 inches. The upper 12 inches is brown that has gray and yellowish brown mottles and the lower 35 inches is grayish brown that has gray mottles. The substratum is gray sandy clay loam that has brownish yellow mottles.

Included with this soil in mapping are small areas of Rains and Ocilla soils. Also included are areas where the surface is loamy fine sand. These inclusions make up about 15 percent of the map unit.

This Lynchburg soil has a water table that is 6 to 20 inches below the surface for 1 to 3 months during spring and winter months in most years. The available water capacity is medium. Permeability is rapid in the surface and subsurface layers and moderate in the subsoil. Natural fertility is low.

Native trees include sweetgum, blackgum, dogwood, longleaf pine, slash pine, loblolly pine; the understory is inkberry and pineland threeawn. Many areas are cleared and used for improved pasture grasses.

This soil has moderate limitations for cultivated crops. The presence of a water table near the surface limits the kinds of crops that can be grown. If the soil is adequately drained, such crops as corn, soybeans, and peanuts can be grown. The crop rotation should include a close-growing crop at least some of the time. Soil-improving cover crops and crop residues should be used to protect the soil from erosion. A good seedbed that has the rows bedded, fertilizer, and lime are necessary.

The soil is well suited to pasture and hay crops. Such grasses as coastal bermudagrass and improved bahiagrass are well suited. White clover and other legumes are moderately well suited. Fertilizer and lime

are necessary as well as carefully controlled grazing to maintain vigorous plants and a good cover.

This soil has a high potential for pine trees. Equipment use limitations and plant competition are management concerns. Slash and loblolly pine are the best suited trees to plant for commercial woodland production.

This Lynchburg soil is in capability subclass IIw.

28—Meggett soils, frequently flooded. These nearly level, dominantly poorly drained soils are on the flood plain of the Ochlockonee River. The unit consists of Meggett soils and similar soils that do not occur in a regular and repeating pattern. One or all of these soils make up about 75 percent of each map unit. Individual areas of each soil are large enough to map separately, but because of lack of accessibility and present and predicted use, they were not separated in mapping. Areas of this unit are mostly long and narrow and range up to 1,000 acres. Individual areas of each soil range from 50 to 500 acres.

Typically, Meggett soils have a 6-inch thick subsurface layer of dark gray very fine sandy loam and a 6-inch thick surface layer of gray loam. The subsoil extends to a depth of about 50 inches. It is gray clay that has red and yellow mottles. The underlying layers are gray and light gray loam to 80 inches or more.

These Meggett soils have a water table 10 inches below the surface for about 6 months in most years. These soils are frequently flooded for about 2 to 15 days. Permeability is moderately rapid in the surface and subsurface layers and slow in the subsoil. Available water capacity is medium in the surface and subsurface layers and high in the subsoil.

Some of the soils similar to Meggett soils are very poorly drained. Typically, these soils have a black and very dark gray loam surface layer about 16 inches thick. The subsoil extending to 60 inches or more is gray clay.

These soils have a water table 10 inches below the surface for about 6 to 9 months in most years and are frequently flooded. Available water capacity is medium in the surface layer and high in the subsoil. Permeability is moderate in the surface layer and slow in the subsoil.

Some of the soils similar to Meggett soils are somewhat poorly drained. Typically, these soils have a 6-inch thick surface layer of very dark gray fine sand. The subsurface layer is dark grayish brown loamy fine sand about 10 inches thick. The subsoil, to about 40 inches, is yellowish brown sandy clay loam and sandy clay that is mottled gray. Beneath the subsoil, to about 70 inches, is mottled sandy loam and loamy sand; white sand extends to a depth of 80 inches or more.

These soils, occasionally flooded, have a water table between 20 to 40 inches below the surface for about 6 months in most years. The permeability is moderately rapid in the surface layer, slow in the subsoil, and rapid in the substratum. Available water capacity is medium in the surface layer and high in the subsoil.

Minor soils make up about 25 percent of the unit. The most extensive are Pamlico, Dorovan, Plummer, Rutlege, Yonges, Blanton, and Albany soils in about equal proportion.

These Meggett soils are mostly in native trees, including live oak, laurel oak, spruce pine, loblolly pine, sweetgum, sweetbay, and swamp birch.

This unit has severe limitations for cultivated crops. The types of crops are limited by wetness that is moderately difficult to control. With adequate water control, the soil is well suited to several crops. The water control system should remove excess surface and internal water rapidly. Seedbeds should be prepared by bedding the rows. The crop rotation should include close-growing, soil-improving crops at least two-thirds of the time. Crop residues and soil-improving crops should be used to protect the soil from erosion. Fertilizer and lime are needed.

These soils are well suited to pasture and hay crops. A drainage system will remove excess surface water during heavy rains. Coastal bermudagrass and improved bahiagrasses are well suited. White clover is also well suited. These grasses and legumes on this soil require fertilizer and lime. Controlled grazing prevents overgrazing and reducing the vigor of plants.

The unit has very high potential for pine trees but the potential is attainable only on areas with adequate surface drainage. Equipment use limitations and seedling mortality are management concerns. Slash and loblolly pine are the best suited trees to plant for commercial woodland production but only on areas with adequate surface drainage.

Meggett soils are in capability subclass Vw.

29—Norfolk loamy fine sand, 2 to 5 percent slopes. This well drained, gently sloping soil is on uplands. Slopes are smooth and convex.

Typically, the surface layer is 4 inches of grayish brown loamy fine sand. The subsurface layer is also 4 inches thick and is yellowish brown loamy fine sand. The subsoil is brownish yellow and yellowish brown fine sandy loam and sandy clay loam to a depth of about 58 inches where it changes to strong brown and reddish yellow sandy clay. The underlying substratum extends to 80 inches or more and is mottled brownish yellow, strong brown, and gray sandy clay.

Included with these soils in mapping are small areas of Orangeburg and Wagram soils. These inclusions make up about 15 percent of the map unit.

The water table of this Norfolk soil is perched above the lower subsoil for brief periods during the winter. The available water capacity is low in the surface and subsurface layers and medium in the subsoil. Permeability is moderate to rapid in the surface and subsurface layers and moderate in the subsoil. Natural fertility is moderate.

The native trees consist of longleaf pine, slash pine, and loblolly pine and mixed hardwoods—white oak, red oak, live oak, laurel oak, sweetgum, hickory, dogwood, and persimmon. The understory consists of native

grasses and shrubs including huckleberry, briers, and pineland threeawn. Many areas have been cleared and are used for crops and pasture.

This soil has severe limitations for cultivated crops. Such crops as corn and soybeans are well suited when properly managed. To help reduce the erosion hazard, a system of well designed terraces that have stabilized outlets is needed as well as contour cultivation of row crops. The crop rotation should include cover crops at least two-thirds of the time. Soil-improving cover crops and crop residues should be used to protect the soil from erosion. A good seedbed, fertilizer, and lime are necessary.

The soil is well suited to pasture and hay crops. Pasture grasses such as tall fescue, coastal bermudagrass, and improved bahiagrass are well suited. Clovers and other legumes are also suited. These grasses and legumes require fertilizer, lime, and controlled grazing to maintain vigorous plants and a good soil cover.

This soil has high potential for pine trees (fig. 6). Plant competition is a management concern. Slash and loblolly pine are the best suited trees to plant for commercial woodland production.

This Norfolk soil is in capability subclass IIe.

30—Norfolk loamy fine sand, 5 to 8 percent slopes. This well drained, sloping soil is on uplands. Slopes are smooth to choppy and irregular in shape.

Typically, the surface layer is loamy fine sand about 5 inches thick. The subsoil is yellowish brown sandy clay loam to a depth of 80 or more inches. The lower part is mottled red, brown, and gray.

Included with this soil in mapping are small areas of Wagram, Lucy, and Orangeburg soils that are on the same slope positions as this Norfolk soil. Also included are small areas of Orangeburg soils on slopes greater than 8 percent and small areas of soils where the surface layer is sand or fine sandy loam. These inclusions make up 20 percent of the map unit.

This Norfolk has a perched water table above the lower subsoil for brief periods during the winter. The available water capacity is low in the surface layer and medium in the subsoil. Permeability is moderate to rapid in the surface layer and moderate in the subsoil. Natural fertility is moderate.

The native trees are longleaf pine, loblolly pine, and slash pine and mixed hardwoods— white oak, red oak, live oak, laurel oak, sweetgum, hickory, dogwood, and persimmon. The understory consists of native grasses and shrubs including huckleberry, briers, and pineland

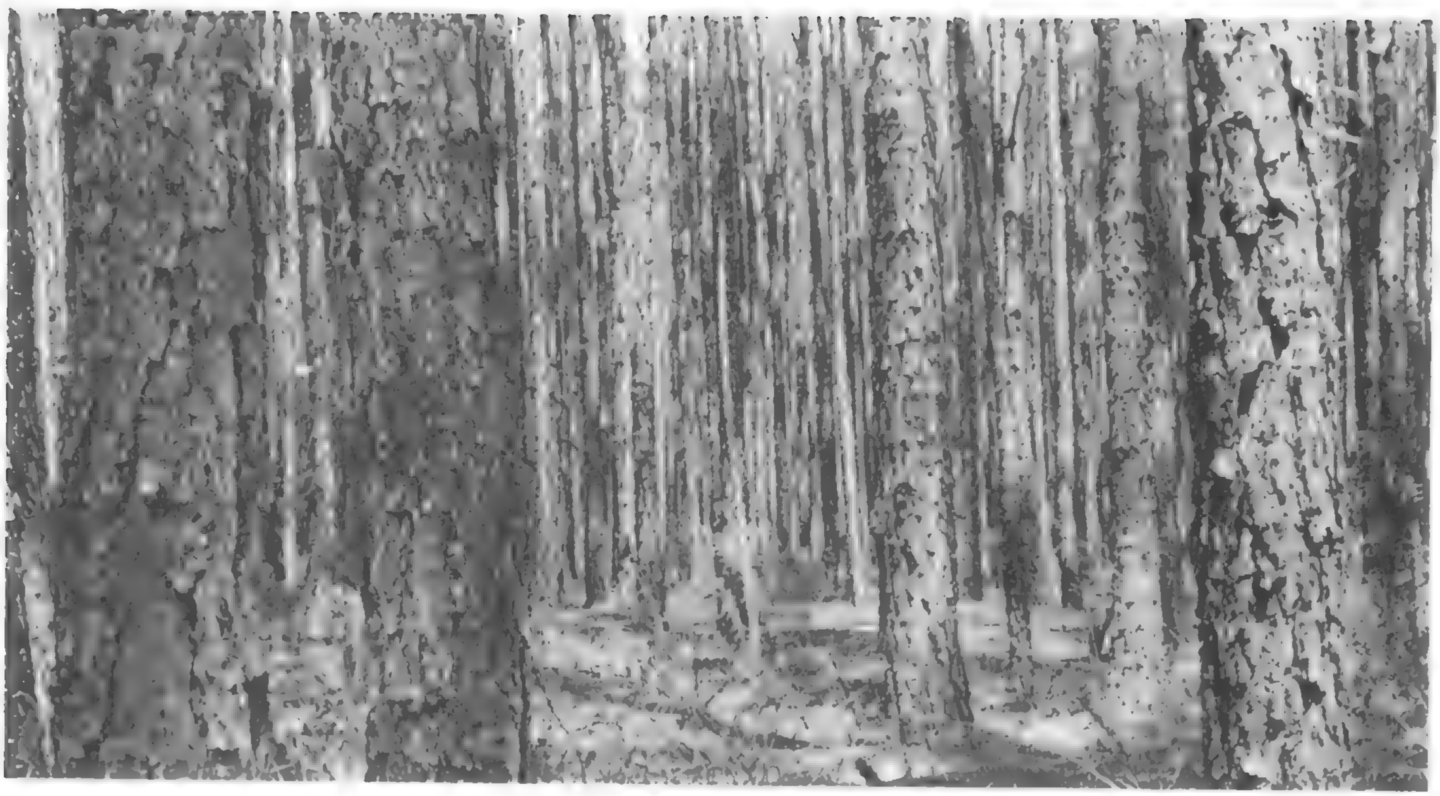


Figure 6.—This stand of pine trees is making excellent growth on Norfolk loamy fine sand, 2 to 5 percent slopes. This soil is one of the better soils for pine trees.

threeawn. Many areas have been cleared and used for crops and pasture.

This soil has moderate limitations for cultivated crops. Such crops as corn and soybeans are well suited when properly managed. The hazard of erosion is reduced by well designed terraces that have stabilized outlets and by contour cultivation of row crops in alternate strips with cover crops. The crop rotation should include cover crops at least half the time. Soil-improving cover crops and crop residue should be used to protect the soil from erosion. A good seedbed, fertilizer, and lime are necessary.

The soil is well suited to pasture and hay crops. Pasture grasses such as tall fescue, coastal bermudagrass and improved bahiagrass are well suited. Clovers and other legumes are also suited. These grasses and legumes require fertilizer, lime, and controlled grazing to maintain vigorous plants and a good soil cover.

This soil has high potential for pine trees. Plant competition is a management concern. Slash and loblolly pine are the best suited trees to plant for commercial woodland production.

This Norfolk soil is in capability subclass IIIe.

31—Norfolk loamy sand, clayey substratum, 5 to 8 percent slopes. This well drained sloping soil is on upland hillsides. Slopes are generally smooth.

Typically, the surface layer is dark brown loamy sand 7 inches thick. The subsoil, extending to a depth of 64 inches, is fine sandy loam in the upper 7 inches and sandy clay loam in the rest. The color is yellowish brown or brownish yellow. The lower 5 inches is mottled brownish yellow, strong brown, and light gray. The substratum is light gray clay that is mottled brownish yellow.

Included with this soil in mapping are small areas of Norfolk and Orangeburg soils, generally occurring on the same slope positions. Also included are small areas of similar soils that have a reddish subsoil and a few areas of this Norfolk soil that have slopes of 2 to 5 percent. A few areas are included where the clay material occurs at depths shallower than 50 inches. These inclusions make up less than 20 percent of the map unit.

This soil has a perched water table above the substratum during wet periods. The available water capacity is low in the surface layer and moderate in the subsoil and substratum. Permeability is rapid in the surface layer, moderate in the subsoil, and very slow in the substratum. Natural fertility is low.

Native trees include shortleaf pine, loblolly pine, longleaf pine and slash pine, live oak, wild cherry, hickory, dogwood, holly, persimmon, and white oak. The understory includes greenbrier, several bluestems, and pineland threeawn.

This soil has severe limitations for cultivated crops. Such crops as corn and soybeans are well suited when properly managed. The hazard of erosion is reduced by well designed terraces that have stabilized outlets and by contour cultivation of row crops. The crop rotation should include cover crops at least two-thirds of the time. Soil-improving cover crops and all crop residue should be used to protect the soil from erosion. A good seedbed, fertilizer, and lime are necessary.

The soil is well suited to pasture and hay crops. Pasture grasses such as tall fescue, coastal bermudagrass, and improved bahiagrass are well suited. Clovers and other legumes are also suited. These grasses and legumes require fertilizing, liming, and controlled grazing to maintain vigorous plants and a good soil cover.

The potential is high for pine trees on this soil. Plant competition is the main management concern. Slash and loblolly pine are the best suited trees to plant for commercial woodland production.

The Norfolk soil is in capability subclass IIIe.

32—Ocilla fine sand. This somewhat poorly drained, nearly level soil is on moderately low uplands. Slopes range from 0 to 2 percent and are slightly convex.

Typically, the surface layer is dark gray fine sand about 3 inches thick. The subsurface layer extends to a depth of about 29 inches—the upper 3 inches is pale olive fine sand, the next 16 inches is light yellowish brown loamy fine sand, and the lower 7 inches is brownish yellow loamy fine sand. The subsoil extending to 80 inches or more is yellowish brown sandy clay loam that has gray mottles in the upper part and is dominantly gray sandy clay loam in the lower part.

Included with this soil in mapping are small areas of Lynchburg, Albany, Plummer, Pelham, Blanton, and Chipley soils. These inclusions make up less than 20 percent of the map unit.

This Ocilla soil has a water table within depths of 15 to 30 inches for 2 to 6 months. The available water capacity is low in the surface and subsurface layers and medium in the subsoil. Permeability is rapid to moderately rapid in the surface and subsurface layers and moderate in the subsoil. Natural fertility is low.

Native trees include laurel oak, live oak, pin oak, and slash and loblolly pine. The understory includes greenbrier, honeysuckle, muscadine grapes, waxmyrtle, sawpalmetto, inkberry, wild mulberry, and pineland threeawn.

This soil has severe limitations for cultivated crops. Because of periodic wetness and the thick sandy surface layer, water control is necessary. With adequate water control, crops such as corn, soybeans, and peanuts are moderately well suited. Good management includes close-growing, soil-improving crops in rotation with row crops. The close-growing crops should be on the land at least two-thirds of the time. Soil-improving cover crops and the residue of all other crops should be used to protect the soil from erosion. Fertilizer and lime are needed.

The soil is moderately suited to pasture and hay crops but requires good management for good yields. Coastal

bermudagrass, bahiagrasses and clovers are well suited. These plants respond well to fertilizer and lime. Drainage is needed to remove excess internal water in wet seasons. Grazing control helps maintain vigorous plants.

The potential is moderately high for pine trees. Equipment use limitations in periods of high rainfall, seedling mortality, and plant competition are management concerns. Slash and loblolly pine are the best suited trees to plant for commercial woodland production.

This Ocilla soil is in capability subclass IIIw.

33—Orangeburg fine sandy loam, 2 to 5 percent slopes. This is a well drained, gently sloping soil that occurs on uplands.

Typically, the surface and subsurface layers are fine sandy loam about 10 inches thick. The upper 5 inches is brown and the lower 5 inches is yellowish red. The subsoil that extends to a depth of 80 inches or more is yellowish red and red sandy clay loam.

Included with this soil are small areas of Blanton, Lucy, and Troup soils. These inclusions make up about 20 percent of the map unit.

The water table of this Orangeburg soil is below 72 inches throughout the year. The available water capacity is low in the surface layer and medium in the subsoil. Permeability is moderately rapid in the surface layer and moderate in the subsoil. Natural fertility is moderate.

Native trees include longleaf pine, slash pine, and loblolly pine, and mixed hardwoods—white oak, red oak, live oak, laurel oak, sweetgum, hickory, dogwood, and persimmon. The understory is native grasses and shrubs including huckleberry, briers and pineland threeawn. Many areas have been cleared and are used for crops and pasture.

This soil has moderate limitations for cultivated crops. The hazard of erosion can be reduced by well designed terraces that have stabilized outlets and by row crops planted on the contour. Such crops as corn and soybeans are well suited when properly managed. The crop rotation should include cover crops at least half the time. Soil-improving cover crops and crop residue should be used to protect the soil from erosion. A good seedbed, fertilizer, and lime are necessary.

The soil is well suited to pasture and hay crops. Pasture grasses such as tall fescue, coastal bermudagrass, and improved bahiagrasses are well suited. Clover and other legumes are suited. These grasses and legumes require fertilizing, liming, and controlled grazing to maintain vigorous plants and a good soil cover.

This soil has high potential for pine trees. Plant competition is a management concern. Slash and loblolly pine are the best suited trees to plant for commercial woodland production.

This Orangeburg soil is in capability subclass IIe.

34—Orangeburg fine sandy loam, 5 to 8 percent slopes. This well drained, sloping soil is on small areas on uplands. Slopes are irregularly shaped.

Typically, the surface layer is very dark grayish brown fine sandy loam about 6 inches thick. The subsurface layer is yellowish brown fine sandy loam about 12 inches thick. The subsoil is yellowish red sandy clay loam that extends to 80 inches or more.

Included with this soil in mapping are small areas of Troup, Lucy, and Blanton soils. These total inclusions make up about 20 percent of the map unit.

The water table of this Orangeburg soil is below 72 inches throughout the year. The available water capacity is low in the surface layer and medium in the subsoil. Permeability is moderately rapid in the surface layer and moderate in the subsoil. Natural fertility is moderate.

Native trees include longleaf pine, slash pine, and loblolly pine and mixed hardwoods—white oak, red oak, live oak, laurel oak, sweetgum, hickory, dogwood, and persimmon. The understory is native grasses and shrubs including huckleberry, briers, and pineland threeawn. Many areas have been cleared and are used for crops and pasture.

This soil has severe limitations for cultivated crops. Such crops as corn and soybeans grow well when properly managed. The hazard of erosion is reduced by well designed terraces that have stabilized outlets and by row crops planted on the contour. The crop rotation should include cover crops at least two-thirds of the time. Soil-improving cover crops and crop residue should be used to protect soil from erosion. A good seedbed, fertilizer, and lime are needed.

This soil is well suited to pasture and hay crops. Pasture grasses such as tall fescue, coastal bermudagrass, and improved bahiagrass are well suited. Clover and other legumes are suited. The grasses and legumes require fertilizer, lime, and controlled grazing to maintain vigorous plants and a good soil cover.

This soil has high potential for pine trees. Plant competition is a management concern. Slash and loblolly pine are the best suited trees to plant for commercial woodland production.

This Orangeburg soil is in capability subclass IIIe.

35—Orangeburg fine sandy loam, 8 to 12 percent slopes. This well drained, strongly sloping soil is on upland hillsides.

Typically, the surface layer is very dark grayish brown fine sandy loam about 5 inches thick. The subsurface layer is yellowish brown fine sandy loam to a depth of about 19 inches. The subsoil is yellowish red sandy clay loam to about 64 inches. The substratum is mottled reddish yellow and red sandy clay loam that extends to 80 inches or more.

Included with this soil in mapping are small areas of Troup, Lucy, and Blanton soils. These inclusions make up about 20 percent of the map unit.

The water table of this Orangeburg soil is below 72 inches throughout the year. The available water capacity

is low in the surface layer and medium in the subsoil. Permeability is moderately rapid in the surface layer and moderate in the subsoil. Natural fertility is moderately low.

Native trees include longleaf pine, slash pine, and loblolly pine, and mixed hardwoods—white oak, red oak, live oak, laurel oak, sweetgum, hickory, dogwood, and persimmon. The understory is of native grasses and shrubs including huckleberry, briers, and pineland threeawn. Some areas have been cleared and used for crops and pasture.

This soil has very severe limitations for cultivated crops. This soil is poorly suited for row crops because slopes are too steep to be safely cultivated. The slopes are too steep to be effectively terraced, and erosion control is limited mainly to use of a plant cover. If row crops are grown, they should be planted in narrow strips on the contour with alternating wider strips of close-growing crops. The crop rotation should include close-growing crops at least three-fourths of the time. All crop residue should be left on the surface. For row crops and close-growing crops, lime and fertilizer are needed.

The soil is moderately well suited to improved pasture. Tall fescue, coastal bermudagrass, and improved bahiagrasses are well suited. Fertilizer, lime, and controlled grazing are needed to assure a plant cover to prevent severe erosion.

This soil has high potential for pine trees. Plant competition is the main management concern. Slash and loblolly pine are the best suited trees to plant for commercial woodland production.

This Orangeburg soil is in capability subclass IVe.

36—Orangeburg-Urban land complex, 2 to 12 percent slopes. This map unit consists of Orangeburg fine sandy loam and Urban land. The Orangeburg soil and Urban land are so intermingled that separating them was not practical at the scale used for mapping.

About 40 to 65 percent of the map unit consists of gently sloping to steep Orangeburg soil or soil that has been reworked or reshaped but is still recognizable as Orangeburg soil. Typically, Orangeburg soil has a 6-inch thick very dark grayish brown fine sandy loam surface layer and a 12-inch thick yellowish brown fine sandy loam subsurface layer. The subsoil is yellowish red sandy clay loam that extends to depths greater than 80 inches. The water table is below a depth of 72 inches throughout the year.

About 15 to 50 percent of this unit is Urban land. Urban land consists of areas that are covered by houses, streets, driveways, buildings, and parking lots. Uncovered areas consist of Orangeburg soil mainly in lawns, vacant lots, and playgrounds. Included in mapping, and making up about 15 percent of the unit, are Lucy, Troup, Norfolk, and Norfolk Variant soils. In a few areas, Urban land makes up as much as 80 percent or as little as 10 percent of a mapped area.

Areas where the soil has been modified by grading and shaping are not so extensive in the older communities as in the newer ones. Excavating below the original surface layer and spreading this material over the adjacent soil or using it to shape building sites is common.

The extensive urban use precludes use of the Orangeburg soil for cultivated crops, pasture, or forest.

This map unit is not placed in a capability subclass.

37—Ortega sand, 0 to 5 percent slopes. This nearly level to gently sloping, moderately well drained soil is on small and medium areas on upland ridges.

Typically, the surface layer is sand about 10 inches thick. The upper 4 inches is gray, and the lower 6 inches is light brownish gray. The underlying layers are sand to a depth of about 44 inches and fine sand to 80 inches or more. From 10 to 18 inches is very pale brown, the next 16 inches is yellow, the next 28 inches is yellow that has brownish mottles, and the lower 8 inches is white that has yellowish mottles.

Included with this soil in mapping are small areas of Blanton and Kershaw soils. These inclusions make up about 25 percent of the map unit.

This Ortega soil has a water table that fluctuates between depths of about 60 to 72 inches in many years during rainy seasons and within depths of 40 to 60 inches occasionally during heavy rainfall periods. Available water capacity is low in the surface layer and very low in the underlying layers. Permeability is rapid. Natural fertility is low.

Native trees are dominantly longleaf pines that have a ground cover of pineland threeawn.

This soil has severe limitations for most cultivated crops. Droughtiness and rapid leaching of plant nutrients limit the choice of plants and reduce potential yields of suitable crops. To reduce the erosion hazard, row crops should be planted on the contour. The crop rotation should include close-growing crops on the soil at least two-thirds of the time. Crops respond well to fertilizer and lime. Soil-improving cover crops and crop residue should be used to protect the soil from erosion. Irrigation of high-value crops is usually feasible where water is readily available.

These soils are moderately well suited to pasture and hay. Plants such as coastal bermudagrass and bahiagrass are well suited. Fertilizer and lime are needed. Controlled grazing is needed to maintain vigorous plants.

This soil has a moderately high potential for pine trees. Slash and longleaf pine are the best suited trees to plant for commercial woodland production.

This Ortega soil is in capability subclass IIIs.

38—Pamlico-Dorovan complex. This map unit consists of nearly level, very poorly drained Dorovan and Pamlico soils that are so intermixed that separating them was not practical at the scale selected for mapping. These soils are irregularly shaped areas of 20 to 200 acres in the flatwoods, along some flood plains, and

along the edges of gently sloping to sloping soils on uplands. Individual areas of each soil in this unit range from about 1/8 to 3 acres in size.

Pamlico mucky peat makes up about 40 to 50 percent of each mapped area. Typically, the soil has a black mucky peat surface layer about 4 inches thick. The next layer to about 28 inches is very dark brown muck. The substratum is very dark gray and dark gray sand that extends to a depth of 80 inches or more.

The Pamlico soil has a water table above the surface for 5 to 8 months in most years and 10 inches below the surface most of the remaining time. Organic matter content is very high. Permeability is moderate in the organic layers and rapid in the sandy substratum. Available water capacity is very high in the organic layers and very low in the substratum.

The Dorovan mucky peat makes up about 30 to 40 percent of each mapped area. Typically, the surface layer is black mucky peat about 5 inches thick. The next layer to about 16 inches is black muck and then is very dark brown muck to a depth of 65 inches. The upper part of the substratum is very dark gray sandy loam about 4 inches thick; then black sand extends to a depth of 80 inches or more.

The Dorovan soil has a water table above the surface 5 to 8 months in most years and 10 inches below the surface most of the remaining time. Permeability is moderate in the organic layers and rapid in the substratum. Available water capacity is very high. Organic matter content is very high.

Minor soils make up about 5 to 20 percent of the unit. Most of these soils have similar drainage but some are sandy and have a thin organic surface layer less than 16 inches thick.

Native trees include mostly water-tolerant hardwoods such as water oak, sweetbay, blackgum, sweetgum, red maple, black willow, common alder, and cypress. At the perimeter of areas, the trees are pond pine, shortleaf pine, and slash pine. Almost all areas are still in native trees. They provide a wildlife habitat.

The Pamlico and Dorovan soils have very severe limitations for cultivated crops. Generally, these soils are not suitable for cultivation, but with adequate water control, they are suitable for some row crops and most vegetable crops. A well designed and maintained water control system is needed. The water control system should remove excess water when row crops are on the soils and keep the soils saturated with water at all other times. Fertilizers that contain phosphates, potash, and minor elements are needed. Water-tolerant cover crops should be on the soils when row crops are not being grown. Crop residue and cover crops should be used to protect the soil from erosion.

Most adapted improved grasses and clovers grow well on these soils when water is properly controlled. Water control should maintain the water table near the surface to prevent excessive oxidation of the organic horizons. Fertilizers high in potash, phosphorus, and minor elements are needed. Controlled grazing helps maintain vigorous plants.

The potential of these soils is low for use as woodland. Seedling mortality and equipment limitations are management concerns. The best suited trees to plant for commercial woodland production are baldcypress on the Dorovan soils and slash and loblolly pine on the Pamlico soils.

The Pamlico and Dorovan soil are in capability subclass IVw.

39—Pelham fine sand. This poorly drained, nearly level soil is on broad flatwoods, in depressional areas, and in some drainageways on uplands. Slopes range from 0 to 2 percent.

Typically, the surface layer is very dark gray fine sand about 5 inches thick. The subsurface layer is dark gray, light brownish gray, and light gray fine sand about 21 inches thick. The subsoil is sandy clay loam that extends to a depth of 80 inches or more. The upper 6 inches of the subsoil is gray that has brown mottles, and the lower part is light gray that has yellow, brown, and red mottles.

Included with this soil in mapping are small areas of Plummer soils. These inclusions make up less than 15 percent of the map unit.

The water table of this Pelham soil is within 15 inches of the soil surface for 3 to 6 months in most years. Permeability is rapid in the surface and subsurface layers and moderate in the subsoil. The available water capacity is low in the surface and subsurface layers and medium in the subsoil. Natural fertility is low.

Native trees include slash pine and loblolly pine, sweetgum, blackgum, and water oak. The understory includes greenbrier, waxmyrtle, and inkberry.

This soil has very severe limitations for cultivated crops. Because of wetness and thick sandy surface layers, a good water control system is needed before this soil is suitable for cultivation. The system should remove excess surface water and excess internal water from the surface layers in wet seasons. The crop rotation should include a close-growing, soil-improving crop on the soil at least three-fourths of the time. Seedbed preparation should include bedding the rows. Crops respond to fertilizer and lime. Crop residue and soil-improving crops should be used to protect the soil from erosion.

This soil is poorly to moderately suited to pasture and hay crops. Tall fescue, coastal bermudagrass, and bahiagrass are well suited to this soil. These grasses respond to fertilizer and lime. Grazing should be controlled to prevent overgrazing and reducing the vigor of the plants. Management should include water control to remove excess surface water.

This soil has high potential for pine trees, but surface drainage is needed for high productivity. Equipment use limitations, seedling mortality, and plant competition are management concerns. Slash and loblolly pine are the best suited trees to plant for commercial woodland

production, but tree planting is feasible only with adequate surface drainage.

This Pelham soil is in capability subclass IVw.

40—Pits. This miscellaneous area consists of open excavations from which soil material has been removed. The material is used for construction work, roadbeds, and fill. The pits range from 2 to 15 acres and from 5 to 30 feet in depth. They occur throughout the county.

Pits are not assigned to a capability subclass.

41—Plummer fine sand. This poorly drained, nearly level soil is in low areas and in poorly defined drainageways. Slopes range from 0 to 2 percent.

Typically, the surface layer is fine sand about 17 inches thick. The upper 6 inches is very dark grayish brown, and the lower 11 inches is dark grayish brown. The subsurface layer is fine sand to a depth of about 61 inches—the upper 11 inches is gray, the next 8 inches is gray that has strong brown mottles, and the lower 25 inches is light gray. The subsoil extending to 80 inches or more is light gray fine sandy loam that has yellowish red mottles.

Included with this soil are small areas of Pelham soils. These inclusions make up less than 10 percent of the map unit.

A water table of this Plummer soil is within 15 inches of the soil surface for 3 to 6 months in most years. The available water capacity is low to very low in the surface and subsurface layers and medium in the subsoil. Permeability is moderately rapid in the surface and subsurface layers and moderate in the subsoil. Natural fertility is low.

The native trees include loblolly pine and slash pine, sweetgum, blackgum, and cypress. The understory includes inkberry, waxmyrtle, ferns, and pineland threeawn.

This soil has very severe limitations for cultivated crops. Because of wetness and thick sandy surface layers, a good water control system is needed before these soils are suitable for cultivated crops. The system should remove excess surface and subsurface water during heavy rainfall. Seedbed preparation should include bedding of rows. Row crops should be rotated with close-growing crops at least three-fourths of the time. Crop residue and cover crops should be used to protect the soil from erosion. Crops respond to fertilizer and lime.

The soil is only fairly suited to pasture. Most improved grasses and legumes are poorly suited. Water control, controlled grazing, fertilizing, and liming help produce poor to moderate yields of pasture grasses.

With adequate surface drainage, this soil has high potential for pine trees. Equipment use limitations, seedling mortality, and plant competition are management concerns. Slash and loblolly pine are the best suited trees to plant for commercial woodland production, but tree planting is feasible only on areas with surface drainage.

This Plummer soil is in capability subclass IVw.

42—Plummer mucky fine sand, depressional. This nearly level poorly drained soil is in swamps of uplands. Slopes are generally concave and less than 1 percent.

Typically, the upper 4 inches is partly decomposed leaf and twig litter. The surface layer is very dark gray, mucky fine sand about 9 inches thick. The subsurface layer is fine sand about 51 inches thick—the upper 20 inches is gray and the lower 31 inches is light gray. The subsoil is gray and light gray sandy clay loam that extends to a depth of 80 inches or more.

Included with this soil are small areas of Dorovan, Pamlico, and Pelham soils, areas of soils without a fine textured subsoil within a depth of 80 inches, and areas of soils where the subsoil is within 20 inches of the surface. These inclusions make up about 20 percent of the map unit.

This Plummer soil is ponded for about 10 months in most years and has a water table 10 inches below the surface the remaining 2 months. Available water capacity is low in the surface and subsurface layers and medium in the subsoil. The surface and subsurface layers are rapidly permeable and the subsoil is moderately permeable. Natural fertility is low.

The native trees include cypress, sweetgum, blackgum, black willow, bayberry, and tupelo. The understory consists of native shrubs including huckleberry, buttonbush, elderberry, Carolina ash, and dahoon holly.

This soil is not suitable for cultivated crops or improved pasture grasses.

This soil has low potential for pine trees, but drainage is needed. Equipment use limitations and seedling mortality are the management concerns. Slash or loblolly pine are the best suited trees to plant for commercial woodland production, but only after drainage is established.

This Plummer soil is in capability subclass VIIw.

43—Rutlege loamy fine sand. This very poorly drained, nearly level soil is in shallow upland depressional areas and in narrow natural drainageways. Slopes range from 0 to 2 percent.

Typically, the surface layer is very dark gray and black loamy fine sand and loamy sand about 23 inches thick. The underlying layers are sand and fine sand to depths of 80 inches or more—the upper 9 inches is grayish brown, the next 25 inches is grayish brown, and the remaining is light gray.

Included with this soil in mapping are small areas of poorly drained Plummer and Pelham soils. These inclusions make up less than 20 percent of the map unit.

This soil has a water table at or near the surface for long periods of each year. Most areas are flooded frequently for brief periods. It has a high available water capacity in the surface layer and is low in the next layer. Permeability is rapid throughout. Natural fertility is moderate.

The native trees include sweetbay, loblolly pine, bayberry, blackgum, pond pine, slash pine, and titi; the understory includes blueberry, fetterbush, and large gallberry. Some areas do not have trees but have pitcher plants, sedges, beak rushes, and pineland threeawn.

This soil has severe limitations for cultivated crops. Without good water control, the number of crops is limited. With adequate water control, such crops as corn and soybeans can be grown. The water control system should remove excess water rapidly after heavy rainfall. Seedbed preparation should include bedding the rows. Management includes fertilizing, liming, and rotating crops to include close-growing, soil-improving crops on the soil at least two-thirds of the time. Crop residue from row crops and soil-improving crops should be used to protect the soil from erosion.

The soil is well suited to pasture and hay crops. Surface ditches remove excess surface water during heavy rainfall. Tall fescue, bahiagrasses, and white clovers are well suited. They respond to fertilizer and lime. Grazing control helps maintain vigorous plants.

With adequate surface drainage this soil has high potential for pine trees. Equipment use limitations, seedling mortality, and competing plants are management concerns. Slash and loblolly pine are the best suited trees to plant for commercial woodland production, but tree planting is feasible only on areas with adequate surface drainage.

This Rutlege soil is in capability subclass IIIw.

44—Rutlege soils, occasionally flooded. These nearly level, very poorly drained soils are in swamps, depressional areas, and along natural drainageways in the Apalachicola National Forest. The unit consists of Rutlege soils and similar soils that do not occur in a regular and repeating pattern. One or more of these soils make up about 75 percent of each map unit. Individual areas of each soil range up to 60 acres and are large enough to map separately, but because of present and predicted use, they were not separated in mapping. Areas of this association range from about 100 acres to several hundred acres.

Rutlege soils make up about 60 percent of the unit. Typically, Rutlege soils have a loamy fine sand surface layer about 15 inches thick. The upper 8 inches is black, and the lower 7 inches is very dark gray. The layer beneath the surface is fine sand to a depth of 80 inches or more. The upper 23 inches is light gray, and the lower 42 inches is very light gray. Yellowish mottles are in these layers.

The soils in this unit that are similar to Rutlege soils have a thicker surface layer. Typically, these soils have a black and very dark gray loamy fine sand surface layer about 30 inches thick. The underlying layer is gray and light gray fine sand that extends to a depth of 80 inches or more.

All these soils have a water table at or near the surface for long periods of each year. Most areas are flooded frequently for brief periods. Available water capacity is high in the surface layer and low below. Permeability is rapid throughout. Natural fertility is moderate.

Minor soils make up about 15 percent of the unit. The most extensive of these are Leon, Talquin, Sapelo, Plummer, Dorovan, and Pamlico soils. The mineral soils are usually around the perimeter of the association, and the organic soils are in the center.

Most areas of this unit are still in native trees of blackgum, slash pine, pond pine, cypress, and sweetbay and has an understory of titi, greenbrier, huckleberry, myrtle, inkberry, fetterbush, and water-tolerant grasses and sedges.

This unit has severe limitations for cultivated crops because of wetness. Without good water control measures, the number of suited crops is limited. With adequate water control, such crops as corn and soybeans can be grown. The water control system should remove excess water rapidly after heavy rainfall. Seedbed preparation should include bedding the rows. Management includes fertilizing, liming, and rotating crops to include close-growing, soil-improving crops on the soil at least two-thirds of the time. Crop residue from row crops and soil-improving crops should be used to protect the soil from erosion.

This soil is well suited to pasture and hay crops. Surface field ditches are needed to remove excess surface water during heavy rainfall. Tall fescue, bahiagrass, and white clovers are well suited. They respond to fertilizer and lime. Controlled grazing helps maintain the vigor of the plants.

With adequate surface drainage, the unit has high potential for pine trees. Equipment use limitations, seedling mortality, and plant competition are management concerns. Slash and loblolly pine are the best suited trees to plant for commercial woodland production, but tree planting is feasible only on areas with surface drainage.

This Rutlege soil is in capability subclass IVw.

45—Sapelo fine sand. This poorly drained, nearly level soil is on the flatwoods. Slopes are smooth to concave, ranging from 0 to 2 percent.

Typically, the surface layer is very dark gray fine sand about 6 inches thick. The subsurface layer is light gray fine sand to about 14 inches. The upper part of the subsoil, to about 26 inches, is fine sand. The first 2 inches is dark reddish brown, the next 6 inches is dark brown, and the lower 3 inches is brown. The dark color is organic matter that coats the sand grains. The next layer is very pale brown and light gray fine sand to a depth of 43 inches. The lower part of the subsoil is gray fine sandy loam that extends to 80 inches or more.

Included with this soil in mapping are small areas of Rutlege and Plummer soils. Also included are small areas that are not loamy in the lower part of the subsoil. These inclusions make up less than 20 percent of the map unit.

This Sapelo soil has a water table at 15 to 30 inches below the surface for about 2 to 4 months in most years. Permeability is moderate in both the upper and lower parts of the subsoil and rapid in the other layers. Available water capacity is medium in the upper and lower parts of the subsoil and low in the other layers. Natural fertility is low.

This soil has very severe limitations for cultivated crops because of wetness and sandy texture. With good water control measures and soil-improving measures, this soil is suitable for crops such as corn, peanuts, soybeans, and watermelons. A complete water control system should remove excess water quickly after heavy rainfall and serve to supply subsurface irrigation in dry seasons. Row crops should be rotated with soil-improving crops. The soil-improving crops should be on the land at least three-fourths of the time. Crop residue and the soil-improving crops should be used to protect the soil from erosion. Seedbed preparation should include bedding of the rows. Crops respond to fertilizer and lime, which should be added according to soil tests.

The soil is well suited to pasture and hay crops. Coastal bermudagrass, improved bahiagrass, and several legumes are adapted. Water control measures are needed to remove excess water during heavy rainfall. Fertilizer and lime are needed. Grazing should be controlled to maintain vigorous plants.

The potential is moderately high for pine trees on this soil. Equipment use limitations, seedling mortality, and plant competition are management concerns. Slash and loblolly pine are the best suited trees to plant for commercial woodland production.

This Sapelo soil is in capability subclass IVw.

46—Surrency loamy sand. This very poorly drained, nearly level soil is in drainageways and depressional areas. Slopes range from 0 to 2 percent.

Typically, the surface layer is very dark gray loamy sand about 16 inches thick. The subsurface layer is grayish brown, loamy sand to about 36 inches. The upper part of the subsoil to 54 inches is light gray sandy loam and the lower part to 65 inches is light brownish gray sandy clay loam.

Included with this soil in mapping are small areas of Rutlege, Dorovan, and Pamlico that occur on the same slope position as this Surrency soil. Also included are areas with highly mottled subsoil. These inclusions make up less than 15 percent of the map unit.

The water table of this Surrency soil is at the surface for long periods of the year and flooding of this soil is common. Available water capacity is high, and permeability is rapid in the surface and subsurface layers and moderate in the subsoil. Natural fertility and organic matter content are low.

Native trees include blackgum, cypress, sweetbay, slash pine, and pond pine in the overstory; swamp cyrilla, littleleaf cyrilla, azalea, gallberry, smilax, and brambles are in the understory; and water-tolerant grasses are on the forest floor.

This soil has severe limitations for cultivated crops. Because of wetness, good water control is necessary to grow such crops as corn and soybeans. The water control system should remove excess water rapidly after a heavy rainfall. Seedbed preparation should include bedding the rows. Management includes fertilizing, liming, and rotating crops to include close-growing, soil-improving crops on the soil at least two-thirds of the time. Crop residue from row crops and soil-improving crops should be used to protect the soil from erosion.

The soil is well suited to pasture and hay crops. Surface ditches are needed to remove excess surface water during heavy rains. Tall fescue, bahiagrasses, and white clover are well suited. Grasses and legumes respond to fertilizer and lime. Grazing should be controlled to maintain vitality of the plants.

With adequate surface drainage this soil has high potential for pine trees. Equipment use limitations, seedling mortality, and plant competition are management concerns. Slash and loblolly pine are the best suited trees to plant for commercial woodland production but tree planting is feasible only on areas with adequate surface drainage.

This Surrency soil is in capability subclass IIIw.

47—Talquin fine sand. This poorly drained, nearly level soil is on broad flatwoods. Slopes are 0 to 2 percent and smooth to concave.

Typically, the surface layer is dark gray fine sand 7 inches thick. The subsurface layer is light gray fine sand about 15 inches thick. The subsoil is fine sand about 12 inches thick—the upper 2 inches is very dark gray and the lower 10 inches is brown. Below the subsoil is light yellowish brown fine sand that extends to 80 inches or more.

Included with this soil in mapping are small areas of Chaires, Leon, Plummer, Rutlege, and Sapelo soils. Total inclusions make up about 15 percent of the map unit.

This Talquin soil has a water table 10 inches below the surface for 1 to 3 months in most years and is at depths of 20 to 40 inches 9 or more months in most years. Available water capacity is very low in the surface, subsurface, and substratum layers and low in the subsoil. Permeability is rapid in the surface, subsurface, and substratum layers and moderate to moderately rapid in the subsoil. Natural fertility is low.

Native plants include longleaf and slash pine, scattered water oaks and waxmyrtle, and a thick undergrowth of sawpalmetto, running oak, fetterbush, gallberry, and pineland threeawn.

This soil has very severe limitations for cultivated crops. Because of wetness and sandy texture, a water control system that removes excess water after heavy rainfall and supplies subsurface irrigation during dry seasons is needed for high yields. With good water control this soil is fairly well suited to most local crops. These crops respond well to lime and fertilizer. Returning crop residue and cover crops to the soil helps to protect the soils from erosion.

This soil is well suited to pasture and hay crops; however, a good water control system is needed to remove excess water. Fertilizer and lime are needed. Controlled grazing helps maintain vigorous plant growth.

This soil has moderately high potential for pine trees. Equipment limitations, seedling mortality, and plant competition are management concerns. Planting the trees on beds lowers the effective depth of the water table. Slash and longleaf pine are the best suited trees to plant for commercial woodland production.

This Talquin soil is in the capability subclass IVw.

48—Troup fine sand, 0 to 5 percent slopes. This nearly level to gently sloping well drained soil is on medium to large uplands.

Typically, the surface layer is dark grayish brown fine sand about 8 inches thick. The upper 11 inches of the subsurface layer is yellowish brown fine sand as well as the next 7 inches that has light gray uncoated sand grain pockets. The lower 18 inches of the subsurface layer is reddish yellow fine sand. The subsoil is fine sandy loam and sandy clay loam that extends to a depth of 80 inches or more. The upper 10 inches of the subsoil is strong brown, the next 19 inches is yellowish red, and the lower 7 inches is red.

Included with this soil are small areas of Blanton, Lucy, and Norfolk soils. These inclusions make up about 20 percent of the map unit.

The water table of this Troup soil is below a depth of 80 inches throughout the year. The available water capacity is low in the surface and subsurface layers and medium in the subsoil. Permeability is rapid in the surface and subsurface layers and moderate in the subsoil. Natural fertility is low.

This soil has severe limitations for cultivated crops. Droughtiness and rapid leaching of plant nutrients limit the choice of plants and reduce potential yields of suited crops. Soil management should include row crops planted on the contour. Crop rotations should include close-growing soil-improving crops on the soil at least two-thirds of the time. The soil-improving crops and the residue of all other crops should be used to protect the soil from erosion. All crops respond to lime and fertilizer. Irrigation of high value crops such as watermelons and tobacco is usually feasible where water is readily available.

This soil is moderately suited to improved pasture. Deep-rooting plants such as Coastal bermudagrass and improved bahiagrasses are well suited. These grasses produce good ground cover when lime and fertilizer are applied. Grazing should be controlled to prevent overgrazing and to maintain vigorous plants. Yields are occasionally reduced by severe drought.

The potential is moderately high for pine trees on this soil. Equipment limitations and seedling mortality are management concerns. Slash and loblolly pine are the best suited trees to plant for commercial woodland production.

This Troup soil is in capability subclass IIIs.

49—Urban land. This map unit consists of areas that are more than 85 percent covered by buildings, streets, houses, schools, and shopping centers, primarily in the downtown area of the city. The open areas are usually in lawns and playgrounds and are so small they could not be separated on the soil map. Soils in these open areas have been so reworked that they can no longer be recognized.

This map unit is not assigned to a capability subclass.

50—Wagram loamy fine sand, 0 to 5 percent slopes. This well drained, nearly level to gently sloping soil is on broad upland ridges. Slopes are smooth to choppy.

Typically, the surface layer is grayish brown loamy fine sand about 3 inches thick. The subsurface layers are loamy fine sand to a depth of 31 inches—the upper 16 inches is yellowish brown; the lower 12 inches is brownish yellow. The subsoil extends to a depth of 62 inches—the upper 12 inches is brownish yellow fine sandy loam; the lower 19 inches is brownish yellow sandy clay loam. Beneath the subsoil is mottled red, brownish yellow, and light gray sandy clay that extends to a depth of 80 inches or more.

Included with this soil in mapping are small areas of Blanton and Norfolk soils that occur on the same slope positions. Also included are small areas of this soil on 5 to 8 percent slopes. These inclusions make up about 15 percent of the map unit.

This Wagram soil does not have a water table within 80 inches of the surface. The available water capacity is low in the surface and subsurface layers and medium in the subsoil. Permeability is rapid in the surface and subsurface layers, moderate in the subsoil, and moderately slow below the subsoil. Natural fertility is moderately low.

Native trees include mixed hardwoods and predominantly shortleaf pines. Understory plants include southern honeysuckle, greenbrier, dogwood, and blackberries.

This soil has moderate limitations for cultivated crops. Droughtiness and rapid leaching of plant nutrients of the thick sandy surface layers limit the type of crops and the potential yields. With good management such crops as corn, soybeans, peanuts, and tobacco can be grown. Row crops should be planted on the contour. The crop rotation should include cover crops at least half the time. Cover crops and crop residue should be used to protect the soil from erosion. A good seedbed, fertilizer, and lime are needed. Irrigation of some high value crops such as tobacco is usually feasible where water is readily available.

The soil is well suited to improved pasture. Deep-rooting plants such as Coastal bermudagrass and bahiagrasses are well suited. These grasses produce well when fertilizer and lime are applied. Controlled

grazing helps to maintain vigorous plants and good cover.

The potential is moderately high for pine trees. Equipment limitations and seedling mortality are management concerns. Slash and loblolly pine are the best suited trees to plant for commercial woodland production.

This Wagram soil is in capability subclass IIs.

51—Wagram loamy fine sand, 5 to 8 percent slopes. This well drained, sloping soil is on upland hillsides. Slopes are smooth to very rough.

Typically, the surface layer is loamy fine sand about 6 inches thick and is dark gray. The subsurface layer is yellowish brown loamy fine sand to a depth of 33 inches. The subsoil is yellowish brown sandy clay loam to about 70 inches. Beneath the subsoil is mottled yellowish brown, light gray, and yellowish red sandy clay.

Included with this soil in mapping are small areas of Blanton and Norfolk soils on the same slope position. Also included are small wet seepy areas usually at the bottom of slopes. These inclusions make up about 15 percent or less of the map unit.

This Wagram soil does not have a water table within 80 inches of the surface. The available water capacity is low in the surface and subsurface layers and medium in the subsoil. Natural fertility is low.

Native trees include upland hardwoods and shortleaf pines. Dominant understory plants include dogwood, honeysuckle, greenbrier, and Virginia creeper.

This soil has severe limitations for cultivated crops. Droughtiness and rapid leaching of plant nutrients from the thick sandy surface layers severely limits the suitability of this soil for most row crops. The steepness of slopes further limits the suitability because cultivation would be difficult and would increase the hazard of erosion. However, cultivated row crops could be planted in strips on the contour alternating with wider strips of close-growing, soil-improving crops. A crop rotation should keep the land under close-growing crops at least two-thirds of the time. Crops on this soil respond to fertilizer and lime. Soil-improving cover crops and other crop residue should be used to protect the soil from erosion.

The soil is moderately well suited to improved pasture. Deep-rooting plants such as coastal bermudagrass and bahiagrasses are well suited. Steepness of slope increases the erosion hazard and reduces the potential yields. Good stands of grass can be produced by fertilizing and liming. Controlled grazing helps the plants to maintain vigor and to provide a good protective cover.

The potential is moderately high for pine trees on this soil. Equipment use limitations and seedling mortality are management concerns. Slash and loblolly pine are the best suited trees to plant for commercial woodland production.

This Wagram soil is in capability subclass IIIs.

52—Yonges fine sandy loam. This poorly drained, nearly level soil is in low areas and in poorly defined drainageways on uplands. Slopes are less than 2 percent.

Typically, the surface layer is fine sandy loam about 5 inches thick and is very dark gray. The subsurface layer is dark gray fine sand about 4 inches thick. The subsoil is sandy clay loam to a depth of 80 inches or more. The upper 15 inches of the subsoil is gray, the next 29 inches is greenish gray, the next 18 inches is olive gray, and the bottom 9 inches is light gray.

Included with this soil in mapping are small areas of Ocilla and Lynchburg soils. These inclusions make up about 25 percent of the map unit.

This Yonges soil has a water table that is 10 inches below the surface for about 6 months in most years. It is frequently flooded for long periods in the winter. Permeability is moderate to moderately rapid in the surface layer and moderately slow in the subsoil. Available water capacity is medium. Natural fertility is low.

This soil has severe limitations for cultivated crops. The number of suitable crops is limited by wetness that is moderately difficult to control. With adequate water control, this soil is well suited for several important crops. The water control system should remove excess surface and internal water rapidly. Seedbeds should be prepared by bedding the rows. Crop rotations are needed that include close-growing, soil-improving crops at least two-thirds of the time. Crop residues and soil-improving crops should be used to protect the soil from erosion. Fertilizer and lime are needed.

This soil is well suited to pasture and hay crops. A drainage system is necessary to remove excess surface water during heavy rains. Coastal bermudagrass and improved bahiagrasses are well suited. White clover is also well suited. These grass and legume crops need fertilizer and lime. Controlled grazing helps prevent overgrazing and reducing the vigor of plants.

The soil has a very high potential for pine trees on areas with adequate surface drainage. Equipment use limitations and seedling mortality are management concerns. Slash and loblolly pine are the best suited trees to plant for commercial woodland production only on areas with surface drainage.

This Yonges soil is in capability subclass IIIw.

use and management of the soils

This soil survey is an inventory and evaluation of the soils in the survey area. It can be used to adjust land uses to the limitations and potentials of natural resources and the environment. Also, it can help avoid soil-related failures in land uses.

In preparing a soil survey, soil scientists, conservationists, engineers, and others collect extensive field data about the nature and behavior characteristics of the soils. They collect data on erosion, droughtiness, flooding, and other factors that affect various soil uses and management. Field experience and collected data on soil properties and performance are used as a basis in predicting soil behavior.

Information in this section can be used to plan the use and management of soils for crops and pasture; as woodland; as sites for buildings, sanitary facilities, highways and other transportation systems, and parks and other recreation facilities; and for wildlife habitat. It can be used to identify the suitability, potentials, and limitations of each soil for specific land uses and to help prevent construction failures caused by unfavorable soil properties.

Planners and others using soil survey information can evaluate the effect of specific land uses on productivity and on the environment in all or part of the survey area. The survey can help planners to maintain or create a land use pattern in harmony with the natural soil.

Contractors can use this survey to locate sources of sand and gravel, roadfill, and topsoil. They can use it to identify areas where bedrock, wetness, or very firm soil layers can cause difficulty in excavation.

Health officials, highway officials, engineers, and others may also find this survey useful. The survey can help them plan the safe disposal of wastes and locate sites for pavements, sidewalks, campgrounds, playgrounds, lawns, and trees and shrubs.

crops and pasture

John Griffin, state conservation agronomist, Soil Conservation Service, helped prepare this section.

General management needed for crops and pasture is suggested in this section. The crops or pasture plants best suited to the soils, including some not commonly grown in the survey area, are identified; the system of land capability classification used by the Soil Conservation Service is explained; and the estimated yields of the main crops and pasture plants are listed for each soil.

Planners of management systems for individual fields or farms should consider the detailed information given in the description of each soil under "Detailed soil map units." Specific information can be obtained from the local office of the Soil Conservation Service or the Cooperative Extension Service.

More than 50,000 acres in the survey area was used for crops and pastures in 1976, according to the Soil Conservation Service "Now-on-the-Land" report, and Leon County Extension Service estimates. Of this total about 36,000 acres was used for permanent pasture, and about 14,000 acres of field crops was corn and soybeans (fig. 7). In addition, about 1,125 acres of specialty crops such as watermelons, vegetables, landscape nursery plants, and turf grass was grown.

The potential of the soils in Leon County for increased food production is good. About 205,000 acres of potentially good cropland is used as woodland, 36,000 acres as pasture, and 17,000 acres of idle cropland. Intensive conservation measures to control erosion would be needed on many gently sloping and sloping soils. In addition to the reserve productive capacity represented by this land, food production could also be increased by applying new crop production technology to all cropland in the county. This soil survey can greatly facilitate the application of such technology.

Acreage in crops and pasture has gradually been decreasing as more and more land is used for urban development. In 1967 there were about 21,000 acres of urban or built-up areas in the county *(4)*; this figure has been growing at the rate of about 1,500 acres per year. The use of this soil survey to help make land use decisions that will influence the future of farming in the county is discussed in the section, "General soil map units".

Soil erosion is a major problem on about two-thirds of the cropland and pastureland in Leon County. If the slope is more than 2 percent, erosion is a hazard. Orangeburg soils, for example, have slopes of 2 to 12 percent.

Loss of the surface layer through erosion is damaging for two reasons. First, productivity is reduced as the surface layer is lost and part of the subsoil is incorporated into the plow layer. Second, soil erosion on farmland may result in sediment entering streams. Control of erosion minimizes such pollution to streams

Figure 7.—Soybeans are well suited to Wagram loamy fine sand, 0 to 5 percent slopes.

as sediment and helps maintain the quality of water for municipal use, for recreation, and for fish and wildlife habitat.

Erosion control provides surface protection, reduces runoff, and increases infiltration. A cropping system that keeps a plant cover on the surface for extended periods can hold soil erosion losses to amounts that will maintain the productivity of the soils. On livestock farms, which require pasture and hay, the grass and legume forage crops in the cropping system reduce erosion on sloping land and also provide nitrogen and improve tilth for the following crop.

Slopes are so short and irregular that contour farming or terracing is not practical in many areas of the sloping Dothan, Norfolk, and Orangeburg soils. On these irregular slopes, cropping systems that provide substantial plant cover are necessary to control erosion. Leaving crop residues on the surface help to increase infiltration and reduce the hazards of runoff and erosion. No tillage for corn and soybeans is effective in reducing erosion on sloping land and can be adapted to most soils in the county.

Terraces and diversions reduce the length of slope and reduce runoff and erosion. They are most practical on deep, well drained loamy surface soils that have regular slopes. The Dothan, Norfolk and Orangeburg soils with regular uniform slopes are suitable for terraces.

Soil blowing is a slight hazard on the sandy Alpin, Blanton, Bonifay, Lakeland, Fuquay, Lucy, Troup, and Wagram soils. Soil blowing can damage these soils and the tender crops growing on them in a few hours if winds are strong and the soils are dry and bare of plants or surface mulch. Maintaining plant cover and surface mulch minimizes soil blowing. Windbreaks of trees and shrubs, such as slash pine, southern redcedar, Japanese privet, and Carolina laurelcherry are effective in reducing wind erosion and crop damage. Strip crops of small grain are also effective in reducing wind erosion and crop damage.

Information for the design of erosion controls for each kind of soil is available in the local office of the Soil Conservation Service.

Soil drainage is a major management need on about one-fifth of the acreage used for crops and pasture in the county. Some soils are naturally so wet that the production of crops and pasture common to the area is generally not possible without adequate drainage or water control. These are the very poorly drained Rutlege soils and the poorly drained Chaires, Leon, Pelham, Sapelo, and Yonges soils, which make up about 36,000 acres in Leon County.

Unless artificially drained, the somewhat poorly drained soils are so wet that crops are damaged during most years. In this category are Albany, Lutterloh, Chipley, Leefield, Lynchburg, and Ocilla soils, which make up about 44,000 acres.

Blanton soils have good natural drainage most of the year, but they tend to dry out slowly after rains. Small areas of wetter soils along drainageways and in swales are commonly included in areas of moderately well drained soils, especially those that have slopes of 2 to 5 percent. Artificial drainage is needed in some of these wetter areas.

The design of both surface and subsurface drainage systems varies with type of soil. A combination of surface drainage and tile drainage is needed in most areas of the poorly drained and very poorly drained soils used for row cropping. Drains should be more closely spaced in soils with slow permeability than the more permeable soils. Finding adequate outlets for tile drainage systems is difficult in many areas of poorly drained soils.

Organic soils oxidize and subside when the pore space is filled with air, therefore special drainage systems are needed to control the depth and period of drainage. Keeping the water table at the level required by crops during the growing season and raising it to the surface during other parts of the year minimize the oxidation and subsidence of organic soils. Information on drainage design for each type of soil is available at the local office of the Soil Conservation Service.

Soil fertility is naturally low in most soils in the county. The organic Dorovan and Pamlico soils have a dark-colored surface layer, but the other soils have a light-colored surface layer. The Orangeburg and Faceville soils have a loamy surface layer and the other mineral soils have a sandy surface layer.

Most of the soils are naturally strongly to very strongly acid, and if they have never been limed, they require applications of ground limestone to raise the pH level for good growth of crops. Nitrogen and available phosphorus and potash levels are naturally low in most of these soils. On all soils additions of lime and fertilizer should be based on the results of soil tests, on the needs of the crops, and the expected level of yields. The Cooperative Extension Service can help in determining the kinds and amounts of fertilizer and lime to apply.

Soil tilth is an important factor in the germination of seeds and the infiltration of water into the soil. Soils with good tilth are granular and porous.

Most of the soils in the survey area have a sandy or sandy loam surface layer that is light in color and low in content of organic matter. Generally, the structure of such soils is weak, and intense rainfall causes the formation of crust on the surface. The crust is hard when it is dry, and it is slightly impervious to water. Once the crust forms, it reduces infiltration and increases runoff. Incorporating crop residues, manure and other organic material into the surface layer can help to improve soil tilth and to reduce crust formation.

Fall plowing is not practical on the county's soils because about two-thirds of the cropland is sloping soils that are subject to the hazards of erosion.

Field crops suited to the soils and climate of the survey area include many that are not now commonly grown. Corn and, to an increasing extent, soybeans, and, to a lesser extent, peanuts and tobacco, are the crops grown. Grain sorghum, potatoes, sunflowers, and similar crops can be grown if economic conditions are favorable. Soybeans and peanuts could be increased under favorable economic conditions. Grass seed can be produced from bahiagrass and bermudagrass.

Wheat, oats, and rye are common close-growing crops. Soil-improving cover crops that will improve or maintain good physical condition of the soil include cowpeas, clover, hairy indigo, and Florida beggarweed.

Special crops grown commercially in the county are watermelons, sweet potatoes, okra, string beans, squash, field peas, lima beans, nursery plants, and turf grasses. In addition, large areas can be adapted to other special crops such as muscadine grapes, blackberries, blueberries, peaches, and many vegetables.

Deep soils that have good natural drainage are especially well suited to vegetables and small fruits. In the county these are the Dothan, Faceville, Norfolk, and Orangeburg soils on slopes of less than 8 percent, and they total about 109,000 acres, Also, if irrigated, about 45,000 acres of Blanton, Bonifay, Lucy, Troup, and Wagram soils that have slopes less than 8 percent are well suited to small fruits and vegetables.

Most of the well drained soils in the county are suitable for orchards and nursery plants. Soils in low positions where frost is possible and air drainage is poor generally are poorly suited to early vegetables, small fruits, nursery plants, and orchards.

Latest information and suggestions for growing special crops can be obtained from the local office of the Cooperative Extension Service or the Soil Conservation Service.

Pastures in the survey area are used to produce forage for beef and dairy cattle. Cow-calf operations are the main beef cattle programs. Bahiagrass and improved bermudagrass are the main pasture plants grown in the county. Many farmers seed small grains on cropland in the fall for winter and spring forage. Excess grass in the summer months is harvested as hay for feeding during the winter. The well drained soils that have a loamy surface, such as Dothan, Faceville, and Orangeburg are well suited to growing legumes with bahiagrass and improved bermudagrass. Legumes such as white, crimson, and arrowleaf clovers are well suited to these soils when adequate lime and fertilizer are used.

The well drained and moderately well drained soils, Blanton, Bonifay, Fuquay, Lucy, Troup, and Wagram, are well suited to pasture of bahiagrass and improved bermudagrass.

The somewhat poorly drained soils, Albany, Lutterloh, Chipley, Leefield, Lynchburg, and Ocilla are well suited to bahiagrass and improved bermudagrass with legumes such as sweet clover and arrowleaf clover, when adequate lime and fertilizer are applied.

With adequate surface drainage, the poorly and very poorly drained soils, Leon, Yonges, Pelham, Plummer,

Rutlege, and Sapelo are well suited to bahiagrass and limpo pastures. Legumes such as white clover are well suited to these soils when adequate lime and fertilizer are applied.

Pasture in many parts of the county is greatly depleted by excessive grazing. Yields of pasture are increased with lime, fertilizer, legumes, and other management practices.

Differences in the amount and kind of pasture yields are related closely to the type of soil. Management of pasture is based on the relationship of soils, pasture plants, lime, fertilizer, and moisture.

Information for growing pastures can be obtained from the local office of the Cooperative Extension Service or the Soil Conservation Service.

yields per acre

The average yields per acre that can be expected of the principal crops under a high level of management are shown in table 5. In any given year, yields may be higher or lower than those indicated in the table because of variations in rainfall and other climatic factors.

The yields are based mainly on the experience and records of farmers, conservationists, and extension agents. Available yield data from nearby counties and results of field trials and demonstrations are also considered.

The management needed to obtain the indicated yields of the various crops depends on the kind of soil and the crop. Management can include drainage, erosion control, and protection from flooding; the proper planting and seeding rates; suitable high-yielding crop varieties; appropriate and timely tillage; control of weeds, plant diseases, and harmful insects; favorable soil reaction and optimum levels of nitrogen, phosphorus, potassium, and trace elements for each crop; effective use of crop residue, barnyard manure, and green-manure crops; and harvesting that insures the smallest possible loss.

The estimated yields reflect the productive capacity of each soil for each of the principal crops. Yields are likely to increase as new production technology is developed. The productivity of a given soil compared with that of other soils, however, is not likely to change.

Crops other than those shown in table 5 are grown in Leon County, but estimated yields are not listed because the acreage of such crops is small. The local office of the Soil Conservation Service or of the Cooperative Extension Service can provide information about the management and productivity of the soils.

land capability classification

Land capability classification shows, in a general way, the suitability of soils for most kinds of field crops. Crops that require special management are excluded. The soils are grouped according to their limitations for field crops, the risk of damage if they are used for crops, and the way they respond to management. The grouping does not take into account major and generally expensive landforming that would change slope, depth, or other characteristics of the soils, nor does it consider possible but unlikely major reclamation projects. Capability classification is not a substitute for interpretations designed to show suitability and limitations of groups of soils for woodland, and for engineering purposes.

In the capability system, soils are generally grouped at three levels: capability class, subclass, and unit. Only class and subclass are used in this survey. These levels are defined in the following paragraphs.

Capability classes, the broadest groups, are designated by Roman numerals I through VIII. The numerals indicate progressively greater limitations and narrower choices for practical use. The classes are defined as follows:

Class I soils have slight limitations that restrict their use.

Class II soils have moderate limitations that reduce the choice of plants or that require moderate conservation practices.

Class III soils have severe limitations that reduce the choice of plants or that require special conservation practices, or both.

Class IV soils have very severe limitations that reduce the choice of plants or that require very careful management, or both.

Class V soils are not likely to erode but have other limitations, impractical to remove, that limit their use.

Class VI soils have severe limitations that make them generally unsuitable for cultivation.

Class VII soils have very severe limitations that make them unsuitable for cultivation.

Class VIII soils and miscellaneous areas have limitations that nearly preclude their use for commercial crop production.

Capability subclasses are soil groups within one class. They are designated by adding a small letter, *e, w, s,* or *c,* to the class numeral, for example, IIe. The letter *e* shows that the main limitation is risk of erosion unless close-growing plant cover is maintained; *w* shows that water in or on the soil interferes with plant growth or cultivation (in some soils the wetness can be partly corrected by artificial drainage); *s* shows that the soil is limited mainly because it is shallow, droughty, or stony; and *c*, used in only some parts of the United States, shows that the chief limitation is climate that is very cold or very dry.

In class I there are no subclasses because the soils of this class have few limitations. Class V contains only the subclasses indicated by *w, s,* or *c* because the soils in class V are subject to little or no erosion. They have other limitations that restrict their use to pasture, woodland, wildlife habitat, or recreation.

The acreage of soils in each capability class and subclass is shown in table 6. The capability classification of each map unit is given in the section "Detailed soil map units."

woodland management and productivity

Carl D. DeFazio, forester, Soil Conservation Service, and Ronald Heierman, forester, Florida Division of Forestry, helped prepare this section.

Woodland in Leon County is about 318,000 acres, or 75 percent, of the total land area. The soils and climate are good for growing timber with the majority of the forest land occurring on Orangeburg, Dothan, and Alpin soils.

The woodland resources can be divided into four distinct ownership classes—large private plantations, large corporate ownerships, national forest, and small privately owned tracts. Commercial woodland is increasing in Leon County primarily because of the expansion of forest industry ownership.

Major needle-leaved trees include loblolly, longleaf, slash and shortleaf pines and southern baldcypress. Broad-leaved trees include southern red, water and laurel oaks; hickories, sweetgum; and blackgum.

Wildlife habitat management, particularly for bobwhite quail, has a significant effect on woodland management throughout the county. This is most noticeable in the northeastern part of the county.

Large plantations, ranging from 5,000 to 25,000 acres are characteristic of the northeastern part of the county. Much of the land is cleared and in pasture; however, a large percentage of the area consists of loblolly and shortleaf pine forests. These species are well adapted to the soils and climate of this rolling area. Orangeburg and Faceville soils are common in this area. Management, to a great extent, is primarily for quail production. Periodic thinnings, with frequent prescribed burnings, which increase food and understory cover for quail, are the usual forestry management practices.

Intensive commercial pulpwood production dominates the southeastern part of the county. This area has corporately owned and managed farms to produce wood fiber. Slash pines are the principal trees grown. Management consists of short pulpwood rotations followed by clearcutting, intensive site preparation and tree planting (fig. 8). Talquin, Blanton, and Ortega soils are the dominant soils occurring in this section.

Most of the southwestern part of Leon County is in the Apalachicola National Forest. Kershaw, Ortega, Talquin, and Dorovan soils are common in this area. The principal trees are longleaf, slash, and loblolly pines. Associated trees include post, turkey, laurel and live oaks. Much of the area is thinned and burned regularly to increase and improve quail habitat. The forest is managed primarily for sawlog production. New stands are usually regenerated by natural reseeding; however, some stands are established by direct aerial seeding with fixed-wing aircraft or helicopters.

Small, wooded private ownerships are characteristic of the northwestern portion of the county. Little timber management is practiced in this area. Population growth from Tallahassee is extending into this section. Urban forestry activities are prominent. A variety of trees including baldcypress, hickories, sweetgum, blackgum, elm, redbay, and water oak grow on the flood plain along the Ochlockonee River. Major soils of the flood plain are Plummer, Pelham, Yonges, and Meggett. Orangeburg soil is the predominant series above the flood plain. The principal trees growing on this soil are loblolly and shortleaf pines and several kinds of oaks.

An excellent market exists for wood in Leon County. The major market is for pulpwood; however, there is a great demand for poles, posts, veneer, and lumber.

More detailed information on woodland management can be obtained from the local office of the Soil Conservation Service, the Florida Division of Forestry, or the Florida Cooperative Extension Service.

Table 7 can be used by woodland owners or forest managers in planning the use of soils for wood crops. Only those soils suitable for wood crops are listed. The table lists the ordination symbol for each soil. Soils assigned the same ordination symbol require the same general management and have about the same potential productivity.

The first part of the *ordination symbol*, a number, indicates the potential productivity of the soils for important trees. The number 1 indicates very high productivity; 2, high; 3, moderately high; 4, moderate; and 5, low. The second part of the symbol, a letter, indicates the major kind of soil limitation. The letter *w*, excessive water in or on the soil; *s*, sandy texture; The letter *o* indicates that limitations or restrictions are insignificant.

In table 7, *slight, moderate,* and *severe* indicate the degree of the major soil limitations to be considered in management.

Ratings of the *erosion hazard* indicate the risk of loss of soil in well managed woodland. The risk is *slight* if the expected soil loss is small and *moderate* if measures are needed to control erosion during logging and road construction.

Ratings of *equipment limitation* reflect the characteristics and conditions of the soil that restrict use of the equipment generally needed in woodland management or harvesting. A rating of *slight* indicates that use of equipment is not limited to a particular kind of equipment or time of year; *moderate* indicates a short seasonal limitation or a need for some modification in management or in equipment; and *severe* indicates a seasonal limitation, a need for special equipment or management, or a hazard in the use of equipment.

Seedling mortality ratings indicate the degree to which the soil affects the mortality of tree seedlings. Plant competition is not considered in the ratings. The ratings apply to seedlings from good stock that are properly planted during a period of sufficient rainfall. A rating of *slight* indicates that the expected mortality is less than 25 percent; *moderate*, 25 to 50 percent; and *severe*, more than 50 percent.

Ratings of *plant competition* indicate the degree to which undesirable plants are expected to invade where there are openings in the tree canopy. The invading

Figure 8.—These logs were harvested from an area of Lutterloh fine sand, 0 to 5 percent slopes. Forests in the county provide good yields of timber.

plants compete with native plants or planted seedlings. A rating of *slight* indicates little or no competition from other plants; *moderate* indicates that plant competition is expected to hinder the development of a fully stocked stand of desirable trees; *severe* indicates that plant competition is expected to prevent the establishment of a desirable stand unless the site is intensively prepared, weeded, or otherwise managed to control undesirable plants.

The *potential productivity* of merchantable or *common trees* on a soil is expressed as a *site index*. This index is the average height, in feet, that dominant and codominant trees of a given species attain in a specified number of years. Site index was calculated at age 30 years for eastern cottonwood, 35 years for American sycamore, 25 years for south Florida slash pine and 50 years for all other species. The site index applies to fully stocked, even-aged, unmanaged stands. Commonly grown trees are those that woodland managers generally favor in intermediate or improvement cuttings. They are selected on the basis of growth rate, quality, value, and marketability.

Trees to plant are those that are suited to the soils and to commercial wood production.

windbreaks and environmental plantings

Windbreaks protect livestock, buildings, and yards from wind. They also protect fruit trees and gardens, and they furnish habitat for wildlife. Several rows of low- and high-growing broadleaf and coniferous trees and shrubs provide the most protection.

Field windbreaks are narrow plantings made at right angles to the prevailing wind and at specific intervals across the field. The interval depends on the erodibility of the soil. Field windbreaks protect cropland and crops from wind, and provide food and cover for wildlife.

Environmental plantings help to beautify and screen houses and other buildings and to abate noise. The plants, mostly evergreen shrubs and trees, are closely spaced. To insure plant survival, a healthy planting stock of suitable species should be planted properly on a well prepared site and maintained in good condition.

recreation

The soils of the survey area are rated in table 8 according to limitations that affect their suitability for recreation. The ratings are based on restrictive soil features, such as wetness, slope, and texture of the surface layer. Susceptibility to flooding is considered. Not considered in the ratings, but important in evaluating a site, are the location and accessibility of the area, the size and shape of the area, its scenic quality, vegetation, access to water, potential water impoundment sites, and access to public sewerlines. The capacity of the soil to absorb septic tank effluent and the ability of the soil to support vegetation are also important. Soils subject to flooding are limited for recreation use by the duration and intensity of flooding and the season when flooding occurs. In planning recreation facilities, onsite assessment of the height, duration, intensity, and frequency of flooding is essential.

In table 8, the degree of soil limitation is expressed as slight, moderate, or severe. *Slight* means that soil properties are generally favorable and that limitations are minor and easily overcome. *Moderate* means that limitations can be overcome or alleviated by planning, design, or special maintenance. *Severe* means that soil properties are unfavorable and that limitations can be offset only by costly soil reclamation, special design, intensive maintenance, limited use, or by a combination of these measures.

The information in table 8 can be supplemented by other information in this survey, for example, interpretations for septic tank absorption fields in table 11 and interpretations for dwellings without basements for local roads and streets in table 10.

Camp areas require site preparation such as shaping and leveling the tent and parking areas, stabilizing roads and intensively used areas, and installing sanitary facilities and utility lines. Camp areas are subject to heavy foot traffic and some vehicular traffic. The best soils have mild slopes and are not wet or subject to flooding during the period of use. The surface has few or no stones or boulders, absorbs rainfall readily but remains firm, and is not dusty when dry. Strong slopes and stones or boulders can greatly increase the cost of constructing campsites.

Picnic areas are subject to heavy foot traffic. Most vehicular traffic is confined to access roads and parking areas. The best soils for picnic areas are firm when wet, are not dusty when dry, are not subject to flooding during the period of use, and do not have slopes or stones or boulders that increase the cost of shaping sites or of building access roads and parking areas.

Playgrounds require soils that can withstand intensive foot traffic. The best soils are almost level and are not wet or subject to flooding during the season of use. The surface is free of stones and boulders, is firm after rains, and is not dusty when dry. If grading is needed, the depth of the soil over bedrock or a hardpan should be considered.

Paths and trails for hiking, horseback riding, and bicycling should require little or no cutting and filling. The best soils are not wet, are firm after rains, are not dusty when dry, and are not subject to flooding more than once a year during the period of use. They have moderate slopes and few or no stones or boulders on the surface.

wildlife habitat

John F. Vance, biologist, Soil Conservation Service, helped prepare this section

The soils of Leon County support a variety of plants that produce food and cover for many different kinds of wildlife. The primary ecological communities include the lakes, marshes, swamp forests, pine flatwoods, sandhills, and upland mixed hardwood and pine.

The primary game species are white-tailed deer, bobwhite quail, gray squirrel, wild turkey, mourning dove, and waterfowl. Other wildlife includes raccoon, opossum, fox, bobcat, rabbit, fox squirrel, armadillo, and a wide variety of songbirds, woodpeckers, wading birds, reptiles, and amphibians.

Urbanization in the central part of the county has eliminated much wildlife habitat and urban expansion remains the biggest threat; however, the major land area of the county still supports good wildlife habitat. The Apalachicola National Forest, which covers most of the southwestern part of the county, the large forest industry holdings that are generally in the southeastern part, the large private plantations that are located primarily in the northern part, and the large lakes and river swamps throughout the county all provide extensive areas of excellent wildlife habitat.

A number of threatened or endangered species, such as alligator or red-cockaded woodpecker, are in the county. A detailed listing with information on range and habitat may be obtained from the local District Conservationist.

Soils affect the kind and amount of vegetation that is available to wildlife as food and cover. They also affect the construction of water impoundments. The kind and abundance of wildlife depend largely on the amount and distribution of food, cover, and water. Wildlife habitat can be created or improved by planting appropriate vegetation, by maintaining the existing plant cover, or by promoting the natural establishment of desirable plants.

Wildlife habitat thrives on disturbances such as controlled burning, grazing, chopping, cultivating, water level manipulating, mowing, and sometimes the use of

pesticides. Each kind of wildlife occupies a niche in a plant type; therefore, if management is for a particular species, an attempt is made to keep the plants in the stage or stages that favor that species.

A primary factor in evaluating wildlife habitat is the plant diversity in an area. A wide range in plant types or age classes is generally favorable to wildlife. Increasing dominance by a few plant species is commonly accompanied by a corresponding decrease in numbers of wildlife.

In table 9, the soils in the survey area are rated according to their potential for providing habitat for various kinds of wildlife. This information can be used in planning parks, wildlife refuges, nature study areas, and other developments for wildlife; in selecting soils that are suitable for establishing, improving, or maintaining specific elements of wildlife habitat; and in determining the intensity of management needed for each element of the habitat.

The potential of the soil is rated good, fair, poor, or very poor. A rating of *good* indicates that the element or kind of habitat is easily established, improved, or maintained. Few or no limitations affect management, and satisfactory results can be expected. A rating of *fair* indicates that the element or kind of habitat can be established, improved, or maintained in most places. Moderately intensive management is required for satisfactory results. A rating of *poor* indicates that limitations are severe for the designated element or kind of habitat. Habitat can be created, improved, or maintained in most places, but management is difficult and must be intensive. A rating of *very poor* indicates that restrictions for the element or kind of habitat are very severe and that unsatisfactory results can be expected. Creating, improving, or maintaining habitat is impractical or impossible.

The elements of wildlife habitat are described in the following paragraphs.

Grain and seed crops are domestic grains and seed-producing herbaceous plants. Soil properties and features that affect the growth of grain and seed crops are depth of the root zone, texture of the surface layer, available water capacity, wetness, slope, surface stoniness, and flood hazard. Soil temperature and soil moisture are also considerations. Examples of grain and seed crops are corn, soybeans, cowpeas, and millet.

Grasses and legumes are domestic perennial grasses and herbaceous legumes. Soil properties and features that affect the growth of grasses and legumes are depth of the root zone, texture of the surface layer, available water capacity, wetness, surface stoniness, flood hazard, and slope. Soil temperature and soil moisture are also considerations. Examples of grasses and legumes are ryegrass, bahiagrass, hairy indigo, clover, and lespedeza.

Wild herbaceous plants are native or naturally established grasses and forbs, including weeds. Soil properties and features that affect the growth of these plants are depth of the root zone, texture of the surface layer, available water capacity, wetness, surface stoniness, and flood hazard. Soil temperature and soil moisture are also considerations. Examples of wild herbaceous plants are partridgepea, low panicum, beggarweed, mushroom, ragweed, and deerstongue.

Hardwood trees and woody understory produce nuts or other fruit, buds, catkins, twigs, bark, and foliage. Soil properties and features that affect the growth of hardwood trees and shrubs are depth of the root zone, the available water capacity, and wetness. Examples of these plants are oak, cherry, saw palmetto, huckleberry, gallberry, titi, wild grape, dogwood, blackberry, and blueberry.

Coniferous plants furnish browse, seeds, and cones. Soil properties and features that affect the growth of coniferous trees, shrubs, and ground cover are depth of the root zone, available water capacity, and wetness. Examples of coniferous plants are pine, cypress, and cedar.

Wetland plants are annual and perennial wild herbaceous plants that grow on moist or wet sites. Submerged or floating aquatic plants are excluded. Soil properties and features affecting wetland plants are texture of the surface layer, wetness, reaction, salinity, slope, and surface stoniness. Examples of wetland plants are smartweed, wild millet, maidencane, cattail, rushes, sedges, and reeds.

Shallow water areas have an average depth of less than 5 feet. Some are naturally wet areas. Others are created by dams, levees, or other water-control structures. Soil properties and features affecting shallow water areas are depth to bedrock, wetness, surface stoniness, slope, and permeability. Examples of shallow water areas are marshes, waterfowl feeding areas, and ponds.

The habitat for various kinds of wildlife is described in the following paragraphs.

Habitat for openland wildlife consists of cropland, pasture, meadows, and areas that are overgrown with grasses, herbs, shrubs, and vines. These areas produce grain and seed crops, grasses and legumes, and wild herbaceous plants. The wildlife attracted to these areas include bobwhite quail, dove, meadowlark, field sparrow, cottontail rabbit, and sparrow hawk.

Habitat for woodland wildlife consists of areas of deciduous plants or coniferous plants or both and associated grasses, legumes, and wild herbaceous plants. Wildlife attracted to these areas include wild turkey, thrushes, woodpeckers, squirrels, gray fox, raccoon, wild hog, white-tailed deer, and owl.

Habitat for wetland wildlife consists of open, marshy or swampy shallow water areas. Some of the wildlife attracted to such areas are ducks, egrets, herons, ibis, kingfisher, alligator, mink, and otter.

engineering

Bishop C. Beville, environmental engineer, Soil Conservation Service, helped prepare this section.

This section provides information for planning land uses related to urban development and to water management. Soils are rated for various uses, and the most limiting features are identified. The ratings are given in the following tables: Building site development, Sanitary facilities, Construction materials, and Water management. The ratings are based on observed performance of the soils and on the estimated data and test data in the "Soil properties" section.

Information in this section is intended for land use planning, for evaluating land use alternatives, and for planning site investigations prior to design and construction. The information, however, has limitations. For example, estimates and other data generally apply only to that part of the soil within a depth of 5 or 6 feet. Because of the map scale, small areas of different soils may be included within the mapped areas of a specific soil.

The information is not site specific and does not eliminate the need for onsite investigation of the soils or for testing and analysis by personnel experienced in the design and construction of engineering works.

Government ordinances and regulations that restrict certain land uses or impose specific design criteria were not considered in preparing the information in this section. Local ordinances and regulations need to be considered in planning, in site selection, and in design.

Soil properties, site features, and observed performance were considered in determining the ratings in this section. During the fieldwork for this soil survey, determinations were made about grain-size distribution, liquid limit, plasticity index, soil reaction, depth to bedrock, hardness of bedrock within 5 to 6 feet of the surface, soil wetness, depth to a seasonal high water table, slope, likelihood of flooding, natural soil structure aggregation, and soil density. Data were collected about kinds of clay minerals, mineralogy of the sand and silt fractions, and the kind of adsorbed cations. Estimates were made for erodibility, permeability, corrosivity, shrink-swell potential, available water capacity, and other behavioral characteristics affecting engineering uses.

This information can be used to (1) evaluate the potential of areas for residential, commercial, industrial, and recreation uses; (2) make preliminary estimates of construction conditions; (3) evaluate alternative routes for roads, streets, highways, pipelines, and underground cables; (4) evaluate alternative sites for sanitary landfills, septic tank absorption fields, and sewage lagoons; (5) plan detailed onsite investigations of soils and geology; (6) locate potential sources of gravel, sand, earthfill, and topsoil; (7) plan drainage systems, irrigation systems, ponds, terraces, and other structures for soil and water conservation; and (8) predict performance of proposed small structures and pavements by comparing the performance of existing similar structures on the same or similar soils.

The information in the tables, along with the soil maps, the soil descriptions, and other data provided in this survey can be used to make additional interpretations.

Some of the terms used in this soil survey have a special meaning in soil science and are defined in the Glossary.

building site development

Table 10 shows the degree and kind of soil limitations that affect shallow excavations, dwellings with and without basements, small commercial buildings, and local roads and streets. The limitations are considered *slight* if soil properties and site features are generally favorable for the indicated use and limitations are minor and easily overcome; *moderate* if soil properties or site features are not favorable for the indicated use and special planning, design, or maintenance is needed to overcome or minimize the limitations; and *severe* if soil properties or site features are so unfavorable or so difficult to overcome that special design, significant increases in construction costs, and possibly increased maintenance are required. Special feasibility studies may be required where the soil limitations are severe.

Shallow excavations are trenches or holes dug to a maximum depth of 5 or 6 feet for basements, graves, utility lines, open ditches, and other purposes. The ratings are based on soil properties, site features, and observed performance of the soils. The ease of digging, filling, and compacting is affected by the depth to bedrock or a very firm dense layer; stone content; soil texture; and slope. The time of the year that excavations can be made is affected by the depth to a seasonal high water table and the susceptibility of the soil to flooding. The resistance of the excavation walls or banks to sloughing or caving is affected by soil texture and the depth to the water table.

Dwellings and small commercial buildings are structures built on shallow foundations on undisturbed soil. The load limit is the same as that for single-family dwellings no higher than three stories. Ratings are made for small commercial buildings without basements, for dwellings with basements, and for dwellings without basements. The ratings are based on soil properties, site features, and observed performance of the soils. A high water table, flooding, shrink-swell potential, and organic layers can cause the movement of footings. A high water table, depth to bedrock or to a cemented pan, large stones, and flooding affect the ease of excavation and construction. Landscaping and grading that require cuts and fills of more than 5 to 6 feet are not considered.

Local roads and streets have an all-weather surface and carry automobile and light truck traffic all year. They have a subgrade of cut or fill soil material, a base of gravel, crushed rock, or stabilized soil material, and a

flexible or rigid surface. Cuts and fills are generally limited to less than 6 feet. The ratings are based on soil properties, site features, and observed performance of the soils. Depth to bedrock, a high water table, flooding, large stones, and slope affect the ease of excavating and grading. Soil strength (as inferred from the engineering classification of the soil), shrink-swell potential, and depth to a high water table affect the traffic supporting capacity.

sanitary facilities

Table 11 shows the degree and the kind of soil limitations that affect septic tank absorption fields, sewage lagoons, and sanitary landfills. The limitations are considered *slight* if soil properties and site features are generally favorable for the indicated use and limitations are minor and easily overcome; *moderate* if soil properties or site features are not favorable for the indicated use and special planning, design, or maintenance is needed to overcome or minimize the limitations; and *severe* if soil properties or site features are so unfavorable or so difficult to overcome that special design, significant increases in construction costs, and possibly increased maintenance are required.

Table 11 also shows the suitability of the soils for use as daily cover for landfills. A rating of *good* indicates that soil properties and site features are favorable for the use and good performance and low maintenance can be expected; *fair* indicates that soil properties and site features are moderately favorable for the use and one or more soil properties or site features make the soil less desirable than the soils rated good; and *poor* indicates that one or more soil properties or site features are unfavorable for the use and overcoming the unfavorable properties requires special design, extra maintenance, or costly alteration.

Septic tank absorption fields are areas in which effluent from a septic tank is distributed into the soil through subsurface tiles or perforated pipe. Only that part of the soil between depths of 24 and 72 inches is evaluated. The ratings are based on soil properties, site features, and observed performance of the soils. Permeability, a high water table, depth to bedrock, and flooding affect absorption of the effluent. Large stones and bedrock interfere with installation.

Unsatisfactory performance of septic tank absorption fields, including excessively slow absorption of effluent, surfacing of effluent, and hillside seepage, can affect public health. Ground water can be polluted if highly permeable sand and gravel or fractured bedrock is less than 4 feet below the base of the absorption field, if slope is excessive, or if the water table is near the surface. There must be unsaturated soil material beneath the absorption field to effectively filter the effluent. Many local ordinances require that this material be of a certain thickness.

Sewage lagoons are shallow ponds constructed to hold sewage while aerobic bacteria decompose the solid and liquid wastes. Lagoons should have a nearly level floor surrounded by cut slopes or embankments of compacted soil. Lagoons generally are designed to hold the sewage within a depth of 2 to 5 feet. Nearly impervious soil material for the lagoon floor and sides is required to minimize seepage and contamination of ground water.

Table 11 gives ratings for the natural soil that makes up the lagoon floor. The surface layer and, generally, 1 or 2 feet of soil material below the surface layer are excavated to provide material for the embankments. The ratings are based on soil properties, site features, and observed performance of the soils. Considered in the ratings are slope, permeability, a high water table, depth to bedrock, flooding, large stones, and content of organic matter.

Excessive seepage caused by rapid permeability of the soil or a water table that is high enough to raise the level of sewage in the lagoon could cause it to function unsatisfactorily. Pollution results if seepage is excessive or if floodwater overtops the lagoon. A high content of organic matter is detrimental to proper functioning of the lagoon because it inhibits aerobic activity. Slope and bedrock can cause construction problems, and large stones can hinder compaction of the lagoon floor.

Sanitary landfills are areas where solid waste is disposed of by burying it in soil. There are two types of landfill—trench and area. In a trench landfill, the waste is placed in a trench. It is spread, compacted, and covered daily with a thin layer of soil excavated at the site. In an area landfill, the waste is placed in successive layers on the surface of the soil. The waste is spread, compacted, and covered daily with a thin layer of soil from a source away from the site.

Both types of landfill must be able to bear heavy vehicular traffic. Both types involve a risk of ground water pollution. Ease of excavation and revegetation needs to be considered.

The ratings in table 11 are based on soil properties, site features, and observed performance of the soils. Permeability, depth to bedrock, a high water table, slope, and flooding affect both types of landfill. Texture, stones and boulders, highly organic layers, soil reaction, and content of salts and sodium affect trench type landfills. Unless otherwise stated, the ratings apply only to that part of the soil within a depth of about 6 feet. For deeper trenches, a limitation rated slight or moderate may not be valid. Onsite investigation is needed.

Daily cover for landfill is the soil material that is used to cover compacted solid waste in an area type sanitary landfill. The soil material is obtained offsite, transported to the landfill, and spread over the waste.

Soil texture, wetness, coarse fragments, and slope affect the ease of removing and spreading the material during wet and dry periods. Loamy or silty soils that are free of large stones or excess gravel are the best cover for a landfill. Clayey soils are sticky or cloddy and are difficult to spread; sandy soils are subject to soil blowing.

After soil material has been removed, the soil material remaining in the borrow area must be thick enough over bedrock, or the water table to permit revegetation. The soil material used as final cover for a landfill should be suitable for plants. The surface layer generally has the best workability, more organic matter, and the best potential for plants. Material from the surface layer should be stockpiled for use as the final cover.

construction materials

Table 12 gives information about the soils as a source of roadfill, sand, gravel, and topsoil. The soils are rated *good, fair,* or *poor* as a source of roadfill and topsoil. They are rated as a probable or improbable source of sand and gravel. The ratings are based on soil properties and site features that affect the removal of the soil and its use as construction material. Normal compaction, minor processing, and other standard construction practices are assumed. Each soil is evaluated to a depth of 5 or 6 feet.

Roadfill is soil material that is excavated in one place and used in road embankments in another place. In this table, the soils are rated as a source of roadfill for low embankments, generally less than 6 feet high and less exacting in design than higher embankments.

The ratings are for the soil material below the surface layer to a depth of 5 or 6 feet. It is assumed that soil layers will be mixed during excavating and spreading. Many soils have layers of contrasting suitability within their profile. The table showing engineering index properties provides detailed information about each soil layer. This information can help determine the suitability of each layer for use as roadfill. The performance of soil after it is stabilized with lime or cement is not considered in the ratings.

The ratings are based on soil properties, site features, and observed performance of the soils. The thickness of suitable material is a major consideration. The ease of excavation is affected by large stones, a high water table, and slope. How well the soil performs in place after it has been compacted and drained is determined by its strength (as inferred from the engineering classification of the soil) and shrink-swell potential.

Soils rated *good* contain significant amounts of sand or gravel or both. They have at least 5 feet of suitable material, low shrink-swell potential, few cobbles and stones, and slopes of 15 percent or less. Depth to the water table is more than 3 feet. Soils rated *fair* are more than 35 percent silt- and clay-sized particles and have a plasticity index of less than 10. They have moderate shrink-swell potential, slopes of 15 to 25 percent, or many stones. Depth to the water table is 1 to 3 feet. Soils rated *poor* have a plasticity index of more than 10, a high shrink-swell potential, many stones, or slopes of more than 25 percent. They are wet, and the depth to the water table is less than 1 foot. They may have layers of suitable material, but the material is less than 3 feet thick.

Sand and gravel are natural aggregates suitable for commercial use with a minimum of processing. Sand and gravel are used in many kinds of construction. Specifications for each use vary widely. In table 12, only the probability of finding material in suitable quantity is evaluated. The suitability of the material for specific purposes is not evaluated, nor are factors that affect excavation of the material.

The properties used to evaluate the soil as a source of sand or gravel are gradation of grain sizes (as indicated by the engineering classification of the soil), the thickness of suitable material, and the content of rock fragments. Kinds of rock, acidity, and stratification are given in the soil series descriptions. Gradation of grain sizes is given in the table on engineering index properties.

A soil rated as a *probable* source has a layer of clean sand or gravel or a layer of sand or gravel that is up to 12 percent silty fines. This material must be at least 3 feet thick and less than 50 percent, by weight, large stones. All other soils are rated as an *improbable* source. Coarse fragments of soft bedrock, such as limestone, are not considered to be sand and gravel.

Topsoil is used to cover an area so that vegetation can be established and maintained. The upper 40 inches of a soil is evaluated for use as topsoil. Also evaluated is the reclamation potential of the borrow area.

Plant growth is affected by toxic material and by such properties as soil reaction, available water capacity, and fertility. The ease of excavating, loading, and spreading is affected by rock fragments, slope, a water table, soil texture, and thickness of suitable material. Reclamation of the borrow area is affected by slope, a water table, rock fragments, bedrock, and toxic material.

Soils rated *good* have friable loamy material to a depth of at least 40 inches. They are free of stones and cobbles, have little or no gravel, and have slopes of less than 8 percent. They are low in content of soluble salts, are naturally fertile or respond well to fertilizer, and are not so wet that excavation is difficult.

Soils rated *fair* are sandy soils, loamy soils that have a relatively high content of clay, soils that have only 20 to 40 inches of suitable material, soils that have an appreciable amount of gravel, stones, or soluble salts, or soils that have slopes of 8 to 15 percent. The soils are not so wet that excavation is difficult.

Soils rated *poor* are very sandy or clayey, have less than 20 inches of suitable material, have a large amount of gravel, stones, or soluble salts, have slopes of more than 15 percent, or have a seasonal water table at or near the surface.

The surface layer of most soils is generally preferred for topsoil because of its organic matter content. Organic matter greatly increases the absorption and retention of moisture and nutrients for plant growth.

water management

Table 13 gives information on the soil properties and site features that affect water management. The degree and kind of soil limitations are given for pond reservoir areas, and embankments, dikes, and levees. The limitations are considered *slight* if soil properties and site features are generally favorable for the indicated use and limitations are minor and are easily overcome; *moderate* if soil properties or site features are not favorable for the indicated use and special planning, design, or maintenance is needed to overcome or minimize the limitations; and *severe* if soil properties or site features are so unfavorable or so difficult to overcome that special design, significant increase in construction costs, and possibly increased maintenance are required.

This table also gives for each soil the restrictive features that affect drainage, irrigation, terraces and diversions, and grassed waterways.

Pond reservoir areas hold water behind a dam or embankment. Soils best suited to this use have low seepage potential in the upper 60 inches. The seepage potential is determined by the permeability of the soil and the depth to fractured bedrock or other permeable material. Excessive slope can affect the storage capacity of the reservoir area.

Embankments, dikes, and levees are raised structures of soil material, generally less than 20 feet high, constructed to impound water or to protect land against overflow. In this table, the soils are rated as a source of material for embankment fill. The ratings apply to the soil material below the surface layer to a depth of about 5 feet. It is assumed that soil layers will be uniformly mixed and compacted during construction.

The ratings do not indicate the ability of the natural soil to support an embankment. Soil properties to a depth even greater than the height of the embankment can affect performance and safety of the embankment. Generally, deeper onsite investigation is needed to determine these properties.

Soil material in embankments must be resistant to seepage, piping, and erosion and have favorable compaction characteristics. Unfavorable features include less than 5 feet of suitable material and a high content of stones or boulders, organic matter, or salts or sodium. A high water table affects the amount of usable material. It also affects trafficability.

Drainage is the removal of excess surface and subsurface water from the soil. How easily and effectively the soil is drained depends on the depth to bedrock, or to other layers that affect the rate of water movement; permeability; depth to a high water table or depth of standing water if the soil is subject to ponding; slope; susceptibility to flooding; subsidence of organic layers; and potential frost action. Excavating and grading and the stability of ditchbanks are affected by depth to bedrock or to a cemented pan, large stones, slope, and the hazard of cutbanks caving. The productivity of the soil after drainage is adversely affected by extreme acidity or by toxic substances in the root zone, such as salts, sodium, or sulfur. Availability of drainage outlets is not considered in the ratings.

Irrigation is the controlled application of water to supplement rainfall and support plant growth. The design and management of an irrigation system are affected by depth to the water table, the need for drainage, flooding, available water capacity, intake rate, permeability, erosion hazard, and slope. The construction of a system is affected by large stones and depth to bedrock or to a cemented pan. The performance of a system is affected by the depth of the root zone, the amount of salts or sodium, and soil reaction.

Terraces and diversions are embankments or a combination of channels and ridges constructed across a slope to reduce erosion and conserve moisture by intercepting runoff. Slope, wetness, large stones, and depth to bedrock affect the construction of terraces and diversions. A restricted rooting depth, a severe hazard of wind or water erosion, an excessively coarse texture, and restricted permeability adversely affect maintenance.

Grassed waterways are natural or constructed channels, generally broad and shallow, that conduct surface water to outlets at a nonerosive velocity. Large stones, wetness, slope, and depth to bedrock affect the construction of grassed waterways. A hazard of wind erosion, low available water capacity, restricted rooting depth, toxic substances such as salts or sodium, and restricted permeability adversely affect the growth and maintenance of the grass after construction.

soil properties

Data relating to soil properties are collected during the course of the soil survey. The data and the estimates of soil and water features, listed in tables, are explained on the following pages.

Soil properties are determined by field examination of the soils and by laboratory index testing of some benchmark soils. Established standard procedures are followed. During the survey, many shallow borings are made and examined to identify and classify the soils and to delineate them on the soil maps. Samples are taken from some typical profiles and tested in the laboratory to determine grain-size distribution, plasticity, and compaction characteristics. These results are reported in table 20.

Estimates of soil properties are based on field examinations, on laboratory tests of samples from the survey area, and on laboratory tests of samples of similar soils in nearby areas. Tests verify field observations, verify properties that cannot be estimated accurately by field observation, and help characterize key soils.

The estimates of soil properties shown in the tables include the range of grain-size distribution and Atterberg limits, the engineering classifications, and the physical and chemical properties of the major layers of each soil. Pertinent soil and water features also are given.

engineering properties

Table 14 gives estimates of the engineering classification and of the range of index properties for the major layers of each soil in the survey area. Most soils have layers of contrasting properties within the upper 5 or 6 feet.

Depth to the upper and lower boundaries of each layer is indicated. The range in depth and information on other properties of each layer are given for each soil series under "Soil series and their morphology."

Texture is given in the standard terms used by the U.S. Department of Agriculture. These terms are defined according to percentages of sand, silt, and clay in the fraction of the soil that is less than 2 millimeters in diameter. "Loam," for example, is soil that is 7 to 27 percent clay, 28 to 50 percent silt, and less than 52 percent sand. If a soil contains particles coarser than sand, an appropriate modifier is added, for example, "gravelly." Textural terms are defined in the Glossary.

Classification of the soils is determined according to the Unified soil classification system (*2*) and the system adopted by the American Association of State Highway and Transportation Officials (AASHTO) (*1*).

The Unified system classifies soils according to properties that affect their use as construction material. Soils are classified according to grain-size distribution of the fraction less than 3 inches in diameter and according to plasticity index, liquid limit, and organic matter content. Sandy and gravelly soils are identified as GW, GP, GM, GC, SW, SP, SM, and SC; silty and clayey soils as ML, CL, OL, MH, CH, and OH; and highly organic soils as Pt. Soils exhibiting engineering properties of two groups can have a dual classification, for example, SP-SM.

The AASHTO system classifies soils according to those properties that affect roadway construction and maintenance. In this system, the fraction of a mineral soil that is less than 3 inches in diameter is classified in one of seven groups from A-1 through A-7 on the basis of grain-size distribution, liquid limit, and plasticity index. Soils in group A-1 are coarse grained and low in content of fines (silt and clay). At the other extreme, soils in group A-7 are fine grained. Highly organic soils are classified in group A-8 on the basis of visual inspection.

If laboratory data are available, the A-1, A-2, and A-7 groups are further classified as A-1-a, A-1-b, A-2-4, A-2-5, A-2-6, A-2-7, A-7-5, or A-7-6. As an additional refinement, the suitability of a soil as subgrade material can be indicated by a group index number. Group index numbers range from 0 for the best subgrade material to 20 or higher for the poorest. The AASHTO classification for soils tested, with group index numbers in parentheses, is given in table 20.

Rock fragments larger than 3 inches in diameter are indicated as a percentage of the total soil on a dry-weight basis. The percentages are estimates determined mainly by converting volume percentage in the field to weight percentage.

Percentage (of soil particles) passing designated sieves is the percentage of the soil fraction less than 3 inches in diameter based on an oven-dry weight. The sieves, numbers 4, 10, 40, and 200 (USA Standard Series), have openings of 4.76, 2.00, 0.420, and 0.074 millimeters, respectively. Estimates are based on laboratory tests of soils sampled in the county and in nearby areas and on estimates made in the field.

Liquid limit and *plasticity index* (Atterberg limits) indicate the plasticity characteristics of a soil. The estimates are based on test data from the survey area or from nearby areas and on field examination.

physical and chemical properties

Table 15 shows estimates of some characteristics and features that affect soil behavior. These estimates are given for the major layers of each soil in the survey area. The estimates are based on field observations and on test data for these and similar soils.

Clay as a soil separate consists of mineral soil particles that are less than 0.002 millimeter in diameter. In this table, the estimated clay content of each major soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The amount and kind of clay greatly affect the fertility and physical condition of the soil. They determine the ability of the soil to adsorb cations and to retain moisture. They influence shrink-swell potential, permeability, and plasticity, the ease of soil dispersion, and other soil properties. The amount and kind of clay in a soil also affect tillage and earth-moving operations.

Moist bulk density is the weight of soil (ovendry) per unit volume. Volume is measured when the soil is at field moisture capacity, that is, the moisture content at 1/3 bar moisture tension. Weight is determined after drying the soil at 105 degrees C. In this table, the estimated moist bulk density of each major soil horizon is expressed in grams per cubic centimeter of soil material that is less than 2 millimeters in diameter. Bulk density data are used to compute shrink-swell potential, available water capacity, total pore space, and other soil properties. The moist bulk density of a soil indicates the pore space available for water and roots. A bulk density of more than 1.6 can restrict water storage and root penetration. Moist bulk density is influenced by texture, kind of clay, content of organic matter, and soil structure.

Permeability refers to the ability of a soil to transmit water or air. The estimates indicate the rate of downward movement of water when the soil is saturated. They are based on soil characteristics observed in the field, particularly structure, porosity, and texture. Permeability is considered in the design of soil drainage systems, septic tank absorption fields, and construction where the rate of water movement under saturated conditions affects behavior.

Available water capacity refers to the quantity of water that the soil is capable of storing for use by plants. The capacity for water storage is given in inches of water per inch of soil for each major soil layer. The capacity varies, depending on soil properties that affect the retention of water and the depth of the root zone. The most important properties are the content of organic matter, soil texture, bulk density, and soil structure. Available water capacity is an important factor in the choice of plants or crops to be grown and in the design and management of irrigation systems. Available water capacity is not an estimate of the quantity of water actually available to plants at any given time.

Soil reaction is a measure of acidity or alkalinity and is expressed as a range in pH values. The range in pH of each major horizon is based on many field tests. For many soils, values have been verified by laboratory analyses. Soil reaction is important in selecting crops and other plants, in evaluating soil amendments for fertility and stabilization, and in determining the risk of corrosion.

Shrink-swell potential is the potential for volume change in a soil with a loss or gain in moisture. Volume change occurs mainly because of the interaction of clay minerals with water and varies with the amount and type of clay minerals in the soil. The size of the load on the soil and the magnitude of the change in soil moisture content influence the amount of swelling of soils in place. Laboratory measurements of swelling of undisturbed clods were made for many soils. For others, swelling was estimated on the basis of the kind and amount of clay minerals in the soil and on measurements of similar soils.

If the shrink-swell potential is rated moderate to very high, shrinking and swelling can cause damage to buildings, roads, and other structures. Special design is often needed.

Shrink-swell potential classes are based on the change in length of an unconfined clod as moisture content is increased from air-dry to field capacity. The change is based on the soil fraction less than 2 millimeters in diameter. The classes are *low*, a change of less than 3 percent; *moderate*, 3 to 6 percent; and *high*, more than 6 percent. *Very high*, greater than 9 percent, is sometimes used.

Erosion factor K indicates the susceptibility of a soil to sheet and rill erosion by water. Factor K is one of six factors used in the Universal Soil Loss Equation (USLE) to predict the average annual rate of soil loss by sheet and rill erosion in tons per acre per year. The estimates are based primarily on percentage of silt, sand, and organic matter (up to 4 percent) and on soil structure and permeability. Values of K range from 0.05 to 0.69. The higher the value the more susceptible the soil is to sheet and rill erosion by water.

Erosion factor T is an estimate of the maximum average annual rate of soil erosion by wind or water that can occur without affecting crop productivity over a sustained period. The rate is in tons per acre per year.

Wind erodibility groups are made up of soils that have similar properties affecting their resistance to wind erosion in cultivated areas. The groups indicate the susceptibility of soil to wind erosion and the amount of soil lost. Soils are grouped according to the following distinctions:

1. Sands, coarse sands, fine sands, and very fine sands. These soils are generally not suitable for crops. They are extremely erodible, and vegetation is difficult to establish.

2. Loamy sands, loamy fine sands, and loamy very fine sands. These soils are very highly erodible. Crops can be grown if intensive measures to control wind erosion are used.

3. Sandy loams, coarse sandy loams, fine sandy loams, and very fine sandy loams. These soils are highly erodible. Crops can be grown if intensive measures to control wind erosion are used.

4L. Calcareous loamy soils that are less than 35 percent clay and more than 5 percent finely divided calcium carbonate. These soils are erodible. Crops can be grown if intensive measures to control wind erosion are used.

4. Clays, silty clays, clay loams, and silty clay loams that are more than 35 percent clay. These soils are moderately erodible. Crops can be grown if measures to control wind erosion are used.

5. Loamy soils that are less than 18 percent clay and less than 5 percent finely divided calcium carbonate and sandy clay loams and sandy clays that are less than 5 percent finely divided calcium carbonate. These soils are slightly erodible. Crops can be grown if measures to control wind erosion are used.

6. Loamy soils that are 18 to 35 percent clay and less than 5 percent finely divided calcium carbonate, except silty clay loams. These soils are very slightly erodible. Crops can easily be grown.

7. Silty clay loams that are less than 35 percent clay and less than 5 percent finely divided calcium carbonate. These soils are very slightly erodible. Crops can easily be grown.

8. Stony or gravelly soils and other soils not subject to wind erosion.

Organic matter is the plant and animal residue in the soil at various stages of decomposition.

In table 15, the estimated content of organic matter of the plow layer is expressed as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The content of organic matter of a soil can be maintained or increased by returning crop residue to the soil. Organic matter affects the available water capacity, infiltration rate, and tilth. It is a source of nitrogen and other nutrients for crops.

soil and water features

Table 16 gives estimates of various soil and water features. The estimates are used in land use planning that involves engineering considerations.

Hydrologic soil groups are used to estimate runoff from precipitation. Soils not protected by vegetation are assigned to one of four groups. They are grouped according to the intake of water when the soils are thoroughly wet and receive precipitation from long-duration storms.

The four hydrologic soil groups are:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a permanent high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

Flooding, the temporary inundation of an area, is caused by overflowing streams, by runoff from adjacent slopes, or by tides. Water standing for short periods after rainfall and water in swamps and marshes are not considered flooding.

Table 16 gives the frequency and duration of flooding and the time of year when flooding is most likely.

Frequency, duration, and probable dates of occurrence are estimated. Frequency is expressed as none, rare, common, occasional, and frequent. *None* means that flooding is not probable; *rare* that it is unlikely but possible under unusual weather conditions; *common* that it is likely under normal conditions; *occasional* that it occurs on an average of once or less in 2 years; and *frequent* that it occurs on an average of more than once in 2 years. Duration is expressed as *very brief* if less than 2 days, *brief* if 2 to 7 days, and *long* if more than 7 days. Probable dates are expressed in months; November-May, for example, means that flooding can occur during the period November through May.

The information is based on evidence in the soil profile, namely thin strata of gravel, sand, silt, or clay deposited by floodwater; irregular decrease in organic matter content with increasing depth; and absence of distinctive horizons that form in soils that are not subject to flooding.

Also considered are local information about the extent and levels of flooding and the relation of each soil on the landscape to historic floods. Information on the extent of flooding based on soil data is less specific than that provided by detailed engineering surveys that delineate flood-prone areas at specific flood frequency levels.

High water table (seasonal) is the highest level of a saturated zone in the soil in most years. The depth to a seasonal high water table applies to undrained soils. The estimates are based mainly on the evidence of a saturated zone, namely grayish colors or mottles in the soil. Indicated in table 16 are the depth to the seasonal high water table; the kind of water table—that is,

perched, or apparent; and the months of the year that the water table commonly is high. A water table that is seasonally high for less than 1 month is not indicated in table 16.

An apparent water table is a thick zone of free water in the soil. It is indicated by the level at which water stands in an uncased borehole after adequate time is allowed for adjustment in the surrounding soil. A perched water table is water standing above an unsaturated zone. In places an upper, or perched, water table is separated from a lower one by a dry zone.

Only saturated zones within a depth of about 6 feet are indicated. A plus sign preceding the range in depth indicates that the water table is above the surface of the soil and the soil is ponded. The first numeral in the range indicates how high the water rises above the surface. The second numeral indicates the depth below the surface.

Depth to bedrock is given if bedrock is within a depth of 5 feet. The depth is based on many soil borings and on observations during soil mapping. The rock is specified as either soft or hard. If the rock is soft or fractured, excavations can be made with trenching machines, backhoes, or small rippers. If the rock is hard or massive, blasting or special equipment generally is needed for excavation.

Subsidence is the settlement of organic soils or of saturated mineral soils of very low density. Subsidence results from either desiccation and shrinkage or oxidation of organic material, or both, following drainage. Subsidence takes place gradually, usually over a period of several years. Table 16 shows the expected initial subsidence, which usually is a result of drainage, and annual subsidence, which usually is a result of oxidation.

Not shown in the table is subsidence caused by an imposed surface load or by the withdrawal of ground water throughout an extensive area as a result of lowering the water table.

Risk of corrosion pertains to potential soil-induced electrochemical or chemical action that dissolves or weakens uncoated steel or concrete. The rate of corrosion of uncoated steel is related to such factors as soil moisture, particle-size distribution, acidity, and electrical conductivity of the soil. The rate of corrosion of concrete is based mainly on the sulfate and sodium content, texture, moisture content, and acidity of the soil. Special site examination and design may be needed if the combination of factors creates a severe corrosion environment. The steel in installations that intersect soil boundaries or soil layers is more susceptible to corrosion than steel in installations that are entirely within one kind of soil or within one soil layer.

For uncoated steel, the risk of corrosion, expressed as *low*, *moderate*, or *high*, is based on soil drainage class, total acidity, electrical resistivity near field capacity, and electrical conductivity of the saturation extract.

For concrete, the risk of corrosion is also expressed as *low*, *moderate*, or *high*. It is based on soil texture, acidity, and amount of sulfates in the saturation extract.

physical, chemical, and mineralogical analyses

V. W. Carlisle, assistant professor, and C. T. Hallmark and R. E. Caldwell, professors, Soil Science Department, University of Florida; Florida Agricultural Experiment Station, prepared this section.

Physical, chemical, and mineralogical properties of representative pedons sampled in Leon County are presented in tables 17, 18, and 19. The analyses were conducted and coordinated by the Soil Characterization Laboratory at the University of Florida. Detailed profile descriptions of soils analyzed are given in the section "Classification of the soils."

Soils were sampled from typifying pedons. Samples were air-dried, crushed, and sieved through a 2-millimeter screen. Most analytical methods used are outlined in Soil Survey Investigations Report No. 1 *(7)*.

Particle size distributions were determined using modified pipette data reported for the Alpin, Bonifay, Chaires, Foxworth, Fuquay, Kershaw, Lakeland, Leefield, Leon, Lutterloh, Meggett, Ocilla, Pelham, Sapelo, and Talquin soils. Hydraulic conductivity and bulk density were determined on undisturbed soil cores. Water retention parameters were obtained from duplicate undisturbed soil cores placed in Tempe pressure cells. Weight percentages of water retained at 100-centimeter water (1/10 bar) and 345-centimeter water (1/3 bar) were calculated from volumetric water percentages divided by bulk density. Samples were ovendried, ground to pass a 2-millimeter sieve, and 15-bar water retention was determined. Organic carbon was determined by a modification of the Walkley-Black wet combustion method.

Extractable bases were obtained by leaching soils with 1N ammonium acetate buffered at pH 7.0. Sodium and potassium in the extract were determined by flame emission and calcium and magnesium by atomic absorption spectrophotometry. Extractable acidity was determined by the barium chloride-triethanolamine method at pH 8.2. Cation-exchange capacity was calculated by summation of extractable bases and extractable acidity. Base saturation is the ratio of extractable bases to cation-exchange capacity expressed in percent. The pH measurements were made with a glass electrode using a soil water ratio of 1:1; a 0.01 *M* calcium chloride solution in a 1:2 soil-solution ratio; and 1*N* potassium chloride solution in a 1:1 soil-solution ratio. Sodium citrate-dithionite extractable aluminum and iron from selected horizons of Ultisols and Spodosols were analyzed by atomic absorption spectrophotometry.

Mineralogy of the clay fraction (less than 2 microns) was ascertained by X-ray diffraction. Peak heights at 18 angstrom, 14 angstrom, 7.2 angstrom, 4.83 angstrom, and 4.31 angstrom positions represent montmorillonite, interstratified expandable vermiculite or 14-angstrom intergrades, kaolinite, gibbsite, and quartz, respectively.

Peaks were measured, summed, and normalized to give percent soil minerals identified in the X-ray diffractograms. These percentage values do not indicate absolute determined quantities of soil minerals but do imply a relative distribution of minerals in a particular mineral suite. Absolute percentages would require additional knowledge of particle size, crystallinity, unit structure substitution, and matrix problems.

Sands are by far the major particle size fraction in all horizons of all pedons (table 17) with exception of the Meggett soil and the IIC horizon of Norfolk clayey substratum. Alpin, Foxworth, Kershaw, Ortega, and Talquin pedons contain less than 2.5 percent clay throughout their profiles to depths of 2 meters. With exception of the B21h horizon of the Talquin series, the silt content in these soils is less than 5 percent. Chipley, Lakeland, Leon, and Rutlege soils are also inherently sandy with less than 6 percent clay throughout their pedons and silt content in most horizons is proportionately low. Albany, Blanton, Bonifay, Chaires, Lutterloh, Plummer, Sapelo, and Troup soils are inherently sandy to depths of more than 1 meter but have textural increases of clay in lower horizons. Other soils such as Fuquay, Leefield, Lucy, Ocilla, Pelham, and Wagram are inherently sandy to depths of slightly less than 1 meter. With the exception of Albany, Foxworth, and Lakeland pedons the sand fraction of all these soils is dominated by fine sand. Droughtiness is a common characteristic of sandy soils, particularly those that are moderately well drained, well drained, or excessively drained.

Alpin, Foxworth, Kershaw, Lakeland, and Ortega soils retain very low amounts of plant-available water. Hydraulic conductivity, as expected for these Typic Quartzipsamments, is unusually high. However, in some argillic horizons of Albany, Blanton, Bonifay, Chaires, Fuquay, Lucy, Meggett, Norfolk, Norfolk clayey substratum, Pelham, Plummer, Sapelo, Troup, Wagram, and Yonges soils the hydraulic conductivity approaches or may be zero.

Generally low values for extractable bases, cation-exchange capacities (sum cations) and base saturations (table 18) are indicative of low inherent soil fertility. Only Meggett, Orangeburg, and Yonges soils have somewhat consistent cation-exchange capacities in excess of 10 milliequivalents per 100 grams. Calcium is usually the predominant base followed by magnesium with the largest amounts occurring in the Meggett and Yonges soils. Sodium consistently occurs in low amounts and the usual trace amounts of potassium support the absence of appreciable quantities of weatherable minerals (not reported) in these soils.

Cation-exchange capacity exceeds 10 milliequivalents per 100 grams in the surface horizons of Chipley, Leefield, Leon, Meggett, Ocilla, Orangeburg, Pelham, Rutlege, and Yonges soils. Blanton, Chaires, Leon, Meggett, Norfolk clayey substratum, Sapelo, Troup, and Yonges soils contain at least one subsurface horizon with a cation-exchange capacity of 10 milliequivalents per 100 grams or more. Enhanced cation-exchange capacity is expected in surface and spodic horizons because of the increased reactivity associated with organic matter. Higher cation-exchange capacity values in argillic horizons of Chaires, Meggett, Norfolk clayey substratum, Ocilla, and Yonges soils are attributed to the presence of the much more highly reactive montmorillonitic clays.

Soils with low cation-exchange capacities such as Alpin, Foxworth, Kershaw, Lutterloh, and Talquin require only small amounts of bases to significantly alter both base status and soil reaction in the upper horizons. Successful crop production on these soils usually requires small but frequent applications of fertilizer. High cation-exchange capacities and high base saturation values are properties of fertile soils.

Organic carbon contents are usually less than 2 percent in surface soils with the notable exception of larger amounts in the Pelham, Rutlege, and Yonges soils. Usually organic carbon contents decrease rapidly with depth in all pedons except Chaires, Leon, and Sapelo soils that have Bh horizons most frequently containing less than 2 percent organic carbon. Cation-exchange capacities of sandy soils in Leon County are primarily caused by organic carbon content. Conservation and maintenance of organic carbon in these soils should be included in all agricultural management practices.

Consistently low electrical conductivity values are indicative of low soluble salt content of Leon County soils. Soil reaction, with few exceptions, is between pH 4 and pH 6. Reaction seldom ranges more than 1.5 pH units between horizons within the same pedon. Correlation between percent base saturation and pH is not always evident, such as the values reported for certain horizons in the Bonifay, Chaires, Meggett, Plummer, Troup, and Yonges soils. Values for aluminum extracted by citrate-dithionite were 0.40 percent or above in some horizons of the Bonifay, Fuquay, Leon, and Orangeburg soils. Iron by this extraction exceeded a value of 1 percent in some horizons of the Albany, Bonifay, Fuquay, Lucy, Norfolk, Norfolk clayey substratum, Orangeburg, and Troup soils. Plant-available phosphorus is detrimentally affected in soils containing high amounts of citrate-dithionite extractable aluminum and iron.

Sand fraction (2 to .05 millimeter) mineralogy is siliceous with quartz dominant in all pedons. Small amounts of heavy minerals, mostly ilmenite, occur in most horizons with the greatest concentration in the very fine sand fraction. Crystalline mineral components of the clay fraction (<0.002 millimeter) are reported in table 19 for specific horizons of selected pedons. In general the clay mineralogical suite is composed of montmorillonite, a 14-angstrom intergrade, kaolinite, gibbsite, and quartz. Montmorillonite occurred in the Chaires, Meggett, Norfolk clayey substratum, and Yonges soils. Kaolinite, 14-

angstrom intergrade, and quartz occurred in practically all pedons. Gibbsite was detected in Kershaw, Lakeland, and Ortega soils.

Montmorillonite, least stable of the mineral components in the present environment, appears to have been inherited in the Chaires, Meggett, Norfolk clayey substratum, and Yonges soils as evidenced by relative large amounts or increases with increased profile depth. Considerable volume changes could result from shrinkage upon drying and swelling upon wetting of the predominantly montmorillonitic clays in these soils. The general tendency for 14-angstrom intergrade mineral to decrease with increasing depth coupled with the general, although not consistent, increase in kaolinite with depth suggest that the 14-angstrom intergrade is the most stable mineral species in this weathering environment.

Unpredictable occurrence of gibbsite is suggestive of inherited properties. Severe weathering in upper soil horizons results in generally larger amounts of quartz in the clay fraction. Clay mineralogy of most Leon County soils influences their use and management less frequently than the total clay content.

engineering test data

Table 20 contains engineering test data made by the Soils Laboratory, Florida Department of Transportation, Bureau of Materials and Research, on some of the major soil series in the county. These tests were made to help evaluate the soils for engineering purposes. The classifications given are based on data obtained by mechanical analysis and by tests to determine liquid limits and plastic limits.

The mechanical analyses were made by combined sieve and hydrometer methods. In this method, the various grain-sized fractions are calculated on the basis of all the material in the soil sample, including that coarser than 2 millimeters in diameter. The mechanical analyses used in this method should not be used in naming textural classes of soils.

Compaction (or moisture-density) data are important in earthwork. If soil material is compacted at a successively higher moisture content, assuming that the compactive effort remains constant, the density of the compacted material increases until the optimum moisture content is reached. After that, density decreases with increase in moisture content. The highest dry density obtained in the compactive test is termed maximum dry density. As a rule, maximum strength of earthwork is obtained if the soil is compacted to the maximum dry density.

Liquid limit and plasticity index indicate the effect of water on the strength and consistence of the soil material. As the moisture content of a clayey soil is increased from a dry state, the material changes from a semisolid to a plastic state.

If the moisture content is further increased, the material changes from a plastic to a liquid state. The plastic limit is the moisture content at which the soil material changes from a semisolid to a plastic state, and the liquid limit is the moisture content at which the soil material changes from a plastic to a liquid state. The plasticity index is the numerical difference between the liquid limit and the plastic limit. It indicates the range of moisture content within which a soil material is plastic. The data on liquid limit and plasticity index in this table are based on laboratory tests of soil samples.

classification of the soils

The system of soil classification used by the National Cooperative Soil Survey has six categories (*8*). Beginning with the broadest, these categories are the order, suborder, great group, subgroup, family, and series. Classification is based on soil properties observed in the field or inferred from those observations or from laboratory measurements. In table 21, the soils of the survey area are classified according to the system. The categories are defined in the following paragraphs.

ORDER. Ten soil orders are recognized. The differences among orders reflect the dominant soil-forming processes and the degree of soil formation. Each order is identified by a word ending in *sol*. An example is Ultisol.

SUBORDER. Each order is divided into suborders primarily on the basis of properties that influence soil genesis and are important to plant growth or properties that reflect the most important variables within the orders. The last syllable in the name of a suborder indicates the order. An example is Udult (*Ud*, meaning humid, plus *ult*, from Ultisol).

GREAT GROUP. Each suborder is divided into great groups on the basis of close similarities in kind, arrangement, and degree of development of pedogenic horizons; soil moisture and temperature regimes; and base status. Each great group is identified by the name of a suborder and by a prefix that indicates a property of the soil. An example is Paleudults (*Pale*, meaning old or excessive development, plus *udult*, the suborder of the Ultisols that have an udic moisture regime).

SUBGROUP. Each great group has a typic subgroup. Other subgroups are intergrades or extragrades. The typic is the central concept of the great group; it is not necessarily the most extensive. Intergrades are transitions to other orders, suborders, or great groups. Extragrades have some properties that are not representative of the great group but do not indicate transitions to any other known kind of soil. Each subgroup is identified by one or more adjectives preceding the name of the great group. The adjective *Typic* identifies the subgroup that typifies the great group. An example is Typic Paleudults.

FAMILY. Families are established within a subgroup on the basis of physical and chemical properties and other characteristics that affect management. Mostly the properties are those of horizons below plow depth where there is much biological activity. Among the properties and characteristics considered are particle-size class, mineral content, temperature regime, depth of the root zone, consistence, moisture equivalent, slope, and permanent cracks. A family name consists of the name of a subgroup preceded by terms that indicate soil properties. An example is fine-loamy, siliceous, thermic, Typic Paleudults.

SERIES. The series consists of soils that have similar horizons in their profile. The horizons are similar in color, texture, structure, reaction, consistence, mineral and chemical composition, and arrangement in the profile. The texture of the surface layer or of the substratum can differ within a series.

soil series and their morphology

In this section, each soil series recognized in the survey area is described. The descriptions are arranged in alphabetic order.

Characteristics of the soil and the material in which it formed are identified for each series. The soil is compared with similar soils and with nearby soils of other series. A pedon, a small three-dimensional area of soil, that is typical of the series in the survey area is described. The detailed description of each soil horizon follows standards in the Soil Survey Manual (*6*). Many of the technical terms used in the descriptions are defined in Soil Taxonomy (*8*). Unless otherwise stated, colors in the descriptions are for moist soil. Following the pedon description is the range of important characteristics of the soils in the series.

The map units of each soil series are described in the section "Detailed soil map units."

Albany series

The Albany series consists of somewhat poorly drained, moderately permeable, nearly level soils in lower positions on uplands. They formed in unconsolidated deposits of marine sandy and loamy sediments. Slopes range from 0 to 2 percent. A water table is 12 to 30 inches below the surface for 1 to 2 months in most years. These soils are loamy, siliceous, thermic Grossarenic Paleudults.

Albany soils are closely associated with Ocilla, Plummer, and Troup soils. Ocilla soils do not have an A horizon more than 40 inches thick. Albany soils are better drained than Plummer soils that are in lower

positions, and these soils are more poorly drained than Troup soils that are on higher positions.

Typical pedon of Albany loamy sand in a wooded area 4.5 miles west of Silver Lake Road, on Forest Service Road 301, which is 2.5 miles south of Florida Highway 20, NW1/4SE1/4 sec. 13, T. 1 S., R. 3 W.

A1—0 to 4 inches; very dark grayish brown (10YR 3/2) loamy sand; weak fine granular structure; very friable; many fine and medium roots; extremely acid; clear wavy boundary.

A21—4 to 21 inches; pale brown (10YR 6/3) loamy sand; weak fine granular structure; very friable; strongly acid; gradual wavy boundary.

A22—21 to 36 inches; very pale brown (10YR 7/4) loamy sand; weak fine granular structure; very friable; common medium distinct light gray (10YR 7/1) and reddish yellow (7.5YR 7/8) mottles; strongly acid; gradual wavy boundary.

A23—36 to 50 inches; mottled very pale brown (10YR 7/3), yellow (10YR 7/6) and brownish yellow (10YR 6/6) loamy sand; weak fine granular structure; very friable; strongly acid; gradual wavy boundary.

B21t—50 to 63 inches; mottled light gray (10YR 7/1) and yellowish brown (10YR 5/8) sandy loam; weak medium subangular blocky structure; very friable; sand grains coated and bridged with clay; strongly acid; gradual wavy boundary.

B22t—63 to 78 inches; light yellowish brown (10YR 6/4) sandy clay loam; many coarse distinct strong brown (7.5YR 5/6) and few medium distinct reddish brown (5YR 5/4) mottles; moderate medium subangular blocky structure; friable; sand grains well coated and bridged with clay; strongly acid; clear wavy boundary.

C—78 to 100 inches; light gray (10YR 7/1) very fine sandy loam; common medium distinct yellow (10YR 7/6) and few fine prominent reddish yellow (7.5YR 6/6) mottles; weak medium subangular blocky structure: very friable; strongly acid.

The solum is from 60 to 96 inches thick. Soil reaction ranges from extremely acid to strongly acid in the A1 horizon and is strongly acid or very strongly acid in all other horizons.

The Ap or A1 horizon ranges from 4 to 8 inches thick. It has color in hue of 10YR with value of 3 through 5 and chroma of 1 or 2 or with value of 6 and chroma of 2.

The A2 horizon has hue of 10YR with value of 5 and chroma of 2 or 4, with value of 6 and chroma of 2 to 8, or with value of 7 and chroma of 1 to 4; or hue of 2.5Y with value of 6 to 8 and chroma of 4 or with value of 7 and chroma of 2 that has few to many brown, yellow, or gray mottles. Thickness of the A horizon is more than 40 inches.

The B2t horizon has hue of 10YR with value of 5 and chroma of 1 to 8, with value of 6 and chroma of 1 to 6, or with value of 7 and chroma of 1 or 2; or hue of 2.5Y with value of 5 and chroma of 4 or 6, with value of 6 and chroma of 4, or with value of 7 and chroma of 2 to 6 that has common to many mottles of red, brown, yellow or gray. In some pedons, this sandy loam or sandy clay loam horizon does not have a matrix color and is mottled with the above colors.

The C horizon extends to depths greater than 80 inches and has colors similar to the B2t horizon. This horizon ranges from loamy sand to sandy clay loam and is frequently stratified.

Alpin series

The Alpin series consists of excessively drained, very rapidly permeable, nearly level to gently sloping soils on high uplands. They formed in thick beds of sandy eolian or marine deposits. Slopes range from 0 to 5 percent. The water table is below a depth of 80 inches throughout the year. These soils are thermic, coated Typic Quartzipsamments.

Alpin soils are closely associated with Blanton, Kershaw, Ortega, and Troup soils. Blanton and Troup soils have an argillic horizon. Kershaw soils do not have lamellae and are in an uncoated family. Ortega soils do not have lamellae and are moderately well drained.

Typical pedon of Alpin sand in wooded area about 0.9 mile east of State Highway 61, 50 feet south of State Highway 260, SE1/4NE1/4 sec. 11, T. 2 S., R. 1W.

A1—0 to 4 inches; dark gray (10YR 4/1) sand; weak fine and medium granular structure; very friable; many fine, medium and coarse roots; very strongly acid; clear wavy boundary.

A21—4 to 17 inches; very pale brown (10YR 7/3) sand; common coarse white (10YR 8/2) mottles of uncoated sand grains; single grained; loose; many fine and medium charcoal stains and chips; many medium and coarse roots; strongly acid; gradual wavy boundary.

A22—17 to 40 inches; very pale brown (10YR 8/3) sand; common coarse white (10YR 8/1) mottles of uncoated sand; single grained; loose; few medium and coarse roots; strongly acid; gradual wavy boundary.

A23—40 to 55 inches; very pale brown (10YR 8/3) and white (10YR 8/1, 8/2) sand; single grained; loose; many uncoated sand grains; medium acid; gradual wavy boundary.

A2&B—55 to 90 inches; A2 portion white (10YR 8/1) sand; single grained; loose; sand grains mostly uncoated; medium acid; B portion common brownish yellow (10YR 6/6) and yellow (10YR 7/6) sand lamellae about 2 millimeters thick that are discontinuous in length within pedon; sand grains in lamellae are coated and weakly bridged with clay; strongly acid.

Solum thickness is 80 inches or more. Lamellae (fig. 9) begin at depths of about 45 to 70 inches and have a

cumulative thickness of 1 to 6 inches within depths of 80 inches. Reaction is very strongly acid to medium acid.

The A1 horizon has hue of 10YR with value of 3 and chroma of 3 or with value of 4 or 5 and chroma of 1 to 3.

The A2 horizon has hue of 10YR with value of 5 through 7 and chroma of 3 through 8 or with value of 8 and chroma of 3 that may or may not have streaks or pockets of uncoated sand grains that has hue of 10YR, value of 7 or 8, and chroma of 1 or 2.

The A2 portion of the A2&B horizon has the same colors as the A2 horizon. The B2 portion of the A2&B horizon has hue of 10YR with value of 5 and chroma of 4 through 8, with value of 6 and chroma of 6 or 8, or with value of 7 and chroma of 6; or hue of 7.5YR, value of 5, chroma of 6 or 8. This horizon is sand, loamy sand, or sandy loam. Thickness of lamellae ranges from about 1 centimeter to 2.5 centimeters.

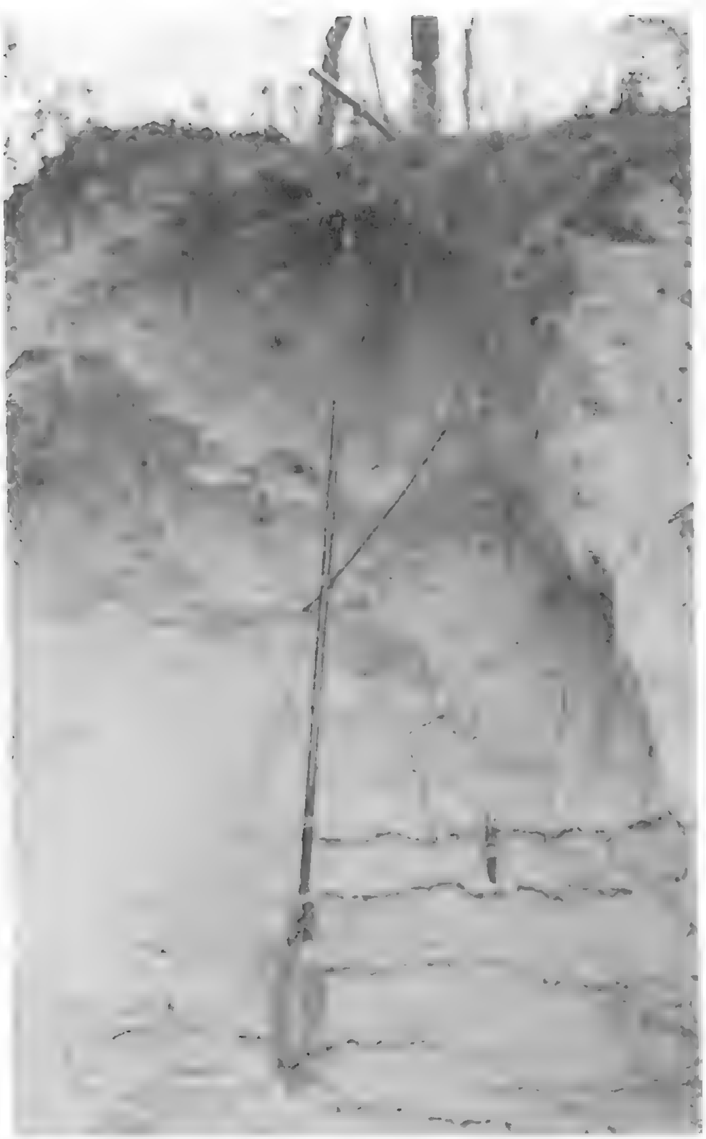


Figure 9.—This profile of Alpin fine sand, 0 to 5 percent slopes, shows the thin loamy fine sand lamellae that are characteristic of this soil. The auger is 80 inches long.

Arents

Arents in this survey area are nearly level to gently sloping, moderately well drained to well drained soils consisting of variable-textured fill materials that have been reworked by earth moving equipment and deposited over undisturbed natural soil, usually in former low areas. The fill material contains fragments of former subsoils. It has been excavated from soils that have sandy, loamy, or clayey subsoils. The water table is below a depth of 60 inches in most areas and below 80 inches in other areas.

Arents are closely associated with many of the soils in the survey area. They are commonly not associated with any one or several soils. They differ from the associated soils by not having an orderly sequence of soil horizons.

Reference pedon of Arents located at intersection of Gearhart and Mission Roads at Interstate Highway 10, SE1/4SE1/4 sec. 17, T. 1 N., R. 1 W.

C1—0 to 20 inches; mixed brown (10YR 5/3), brownish yellow (10YR 6/6), very dark gray (10YR 3/1), and yellowish red (5YR 5/8) loamy fine sand; weak fine granular structure; very friable; very strongly acid; abrupt wavy boundary.

C2—20 to 25 inches; gray (10YR 6/1) sandy clay loam; few fine prominent strong brown (7.5YR 5/8) mottles and common fine faint light greenish gray (5GY 7/1) streaks of clay; weak medium subangular blocky structure; friable; very strongly acid; clear wavy boundary.

C3—25 to 30 inches; light gray (N 7/0) sandy clay loam; common medium distinct strong brown (7.5YR 5/8) and yellowish brown (10YR 5/4) mottles, common coarse distinct dark grayish brown (10YR 4/2) mottles, and few thin light greenish gray (5GY 7/1) clay lenses; weak medium subangular blocky structure; friable; very strongly acid; abrupt wavy boundary.

C4—30 to 45 inches; light gray (5Y 7/1) clay; common medium and coarse distinct reddish yellow (7.5YR 6/8) mottles; few fine distinct red (2.5YR 5/8) mottles; moderate medium subangular blocky structure; firm; very strongly acid; abrupt wavy boundary.

C5—45 to 50 inches; mixed streaks and pockets of yellowish brown (10YR 5/8) sandy loam and gray (10YR 6/1) clay; massive; friable to firm; very strongly acid; abrupt wavy boundary.

IIA1b—50 to 60 inches; very dark grayish brown (10YR 3/2) fine sand; single grained; loose; very strongly acid; clear wavy boundary.

IIA21b—60 to 75 inches; gray (10YR 5/1) fine sand; single grained; loose; very strongly acid; clear wavy boundary.

IIA22b—75 to 80 inches; light brownish gray (10YR 6/2) fine sand; common fine distinct light gray (10YR 7/1) mottles; single grained; loose; very strongly acid.

Soil reaction of the overburden ranges from very strongly acid to medium acid.

This soil does not have orderly sequence of horizons. Depth of fill material or C horizon ranges from about 40 to 80 inches. The C horizon is a mixture of sandy material and fragments from former loamy or clayey argillic horizons and, in places, sandy spodic horizons. The soil is highly variable within short distances.

Blanton series

The Blanton series consists of moderately well drained, moderately permeable, nearly level to gently sloping soils on broad uplands. They formed in sandy and loamy marine or eolian deposits. Slopes range from 0 to 5 percent. A perched water table is above the Bt horizon for less than 1 month during wet seasons and below a depth of 72 inches in other seasons. These soils are loamy, siliceous, thermic Grossarenic Paleudults.

Blanton soils are associated with Albany, Chipley, Kershaw, and Troup soils. Troup soils are well drained. Albany and Chipley soils are somewhat poorly drained. In addition, Chipley soils are sandy to a depth of 80 inches or more. Kershaw soils are excessively drained and do not have a Bt horizon.

Typical pedon of Blanton fine sand in field 400 feet south of U.S. Highway 27 and 1,000 feet west of Old Bainbridge Road, SE1/4NE1/4 sec. 31, T. 2 N., R. 1 W.

Ap—0 to 7 inches; dark grayish brown (10YR 4/2) fine sand; single grained; loose; many fine and few medium roots; strongly acid; clear wavy boundary.

A12—7 to 18 inches; brown (10YR 5/3) fine sand; single grained; loose; common fine and few fine roots; medium acid; gradual wavy boundary.

A21—18 to 30 inches; light yellowish brown (10YR 6/4) fine sand; single grained; loose; few fine roots; strongly acid; gradual wavy boundary.

A22—30 to 39 inches; very pale brown (10YR 7/4) fine sand; single grained; loose; strongly acid; gradual wavy boundary.

A23—39 to 52 inches; very pale brown (10YR 7/4) fine sand; single grained; loose; many uncoated sand grains; strongly acid; clear smooth boundary.

B21t—52 to 62 inches; brownish yellow (10YR 6/6) sandy clay loam; few fine faint brownish yellow (10YR 6/8) and reddish yellow (7.5YR 6/8) mottles; moderate medium subangular blocky structure; friable; sand grains coated and bridged with clay; very strongly acid; clear wavy boundary.

B22t—62 to 80 inches; light brownish gray (10YR 6/2) sandy clay loam; common medium distinct red (2.5YR 4/8) and strong brown (7.5YR 5/6) mottles; weak medium subangular blocky structure; friable; sand grains coated and bridged with clay; strongly acid.

Soil reaction is strongly acid or very strongly acid throughout, except where limed.

Thickness of the A horizon is 40 to 80 inches, but it is most commonly 50 to 70 inches. The Ap or A1 horizon ranges from 6 to 10 inches thick and has hue of 10YR, value of 4 or 5, and chroma of 1 to 3.

The A2 horizon has hue of 10YR with value of 5 and chroma of 4 to 8, with value of 6, chroma of 1 or 4, or with value of 7 and chroma of 1 to 8. It has or does not have few to many pockets of uncoated sand grains.

The B21t horizon has hue of 10YR with value of 5 and chroma of 6 or 8, with value of 6 and chroma of 3 to 8, or with value of 7 and chroma of 3 or 4; or hue of 7.5YR, value of 5, and chroma of 6 or 8 that has or does not have brown, yellow, or red mottles. Thickness ranges from 8 to 14 inches.

The B22t horizon has hue of 10YR, value of 6, and chroma of 2 that has yellow, brown, or red mottles; or hue of 10YR with value of 6 and chroma of 4 to 8 or with value of 5 and chroma of 6 or 8 that has gray and red mottles. The B2t horizon is fine sandy loam or sandy clay loam. Content of plinthite is less than 5 percent within a depth of 60 inches.

Bonifay series

The Bonifay series consists of well drained, moderately slowly permeable, nearly level to gently sloping soils on upland ridges. They formed in thick deposits of sandy and loamy marine sediments. Slopes range from 0 to 5 percent. The water table is perched above the argillic horizon for less than 60 days in most years. These soils are loamy, siliceous, thermic Grossarenic Plinthic Paleudults.

Bonifay soils are associated with Dothan, Fuquay, Lakeland, Lucy, Ocilla, Troup, and Wagram soils. Dothan soils have an A horizon less than 20 inches thick. Fuquay, Lucy, Ocilla, and Wagram soils have an A horizon 20 to 40 inches thick. In addition, Lucy, Ocilla, and Wagram soils do not have significant amounts of plinthite within a depth of 60 inches and Ocilla soils are more poorly drained. Lakeland soils are sandy to a depth of 80 inches or more. Troup soils do not have plinthite.

Typical pedon of Bonifay fine sand in pasture 0.6 mile west of State Highway 364, 40 feet south of Wadesboro Road SE1/4NW1/4 sec. 7, T. 1 N., R. 3 E.

Ap—0 to 8 inches; dark grayish brown (10YR 4/2) fine sand; weak fine and medium granular structure; very friable; many fine and medium roots; medium acid; clear smooth boundary.

A21—8 to 18 inches; yellowish brown (10YR 5/4) fine sand; few medium organic stains of dark grayish brown (10YR 4/2); single grained; loose; few fine roots; strongly acid; clear wavy boundary.
A22—18 to 31 inches; brownish yellow (10YR 6/6) loamy fine sand; few fine and medium distinct reddish yellow (7.5YR 7/8) mottles; weak medium granular structure; very friable; few fine and medium roots; strongly acid; gradual wavy boundary.
A23—31 to 42 inches; yellow (10YR 7/6) loamy fine sand; many coarse distinct light gray (10YR 7/2) uncoated sand grain bodies and reddish yellow (7.5YR 6/8) mottles; weak medium granular structure; very friable; very strongly acid; irregular boundary.
B21t—42 to 53 inches; yellowish brown (10YR 5/8) sandy clay loam; moderate medium and coarse subangular blocky structure; friable; estimated 5 to 7 percent plinthite with red (2.5YR 4/8) interior and strong brown (7.5YR 5/8) exterior; strongly acid; abrupt wavy boundary.
B22t—53 to 80 inches; reticulately mottled red (2.5YR 4/8), strong brown (7.5YR 5/6), very pale brown (10YR 7/3) and white (10YR 8/1); sandy clay; moderate medium subangular blocky structure parting to moderate coarse angular blocky; friable; strongly acid.

Solum thickness ranges from 60 to more than 80 inches. Depth to plinthite ranges from 45 to 60 inches. Unless the soil is limed, reaction is strongly acid or very strongly acid throughout.

The Ap or A1 horizon has hue of 10YR with value of 3 and chroma of 2, with value of 4 or 5 and chroma of 1 to 3, or with value of 6 and chroma of 1; or hue of 2.5Y, value of 5, and chroma of 2. Thickness ranges from 4 to 9 inches. The A2 horizon has hue of 10YR, value of 5 through 7, and chroma of 3 through 8 that has or does not have mottles of light colored uncoated sand grains. Thickness ranges from 36 to 50 inches. The A1 horizon is fine sand, and the A2 horizon is fine sand or loamy fine sand.

The B2t horizon has hue of 10YR with value of 5 or 6 and chroma of 4 to 8 or with value of 7 and chroma of 6; or hue of 7.5YR, value of 5, and chroma of 6 or 8 that has yellow, brown, and red mottles. In some pedons the lower B2t horizon does not have a matrix color and is reticulately mottled red, brown, yellow, and gray. The upper B2t horizon is sandy clay loam or fine sandy loam. The lower B2t horizon is sandy clay. Average clay content of the upper 20 inches of the B2t horizon ranges from 15 to 30 percent. Plinthite ranges from 5 to about 15 percent within a depth of 60 inches.

Chaires series

The Chaires series consists of poorly drained, slowly permeable, nearly level soils on broad areas of flatwoods. They formed in sandy and loamy marine sediments. Slopes range from 0 to 2 percent. The water table is within a depth of 10 inches for 1 to 3 months during high rainfall and within 20 to 40 inches for 6 months or more in most years. These soils are sandy, siliceous, thermic Alfic Haplaquods.

Chaires soils are associated with Leon, Lutterloh, and Talquin soils. Leon and Talquin soils do not have an argillic horizon. Lutterloh soils do not have a spodic horizon.

Typical pedon of Chaires fine sand in cleared area 1/4 mile east of Natural Bridge, 170 feet south of Natural Bridge Road, SE1/4NE1/4 sec. 29, T. 2 S., R. 2 E.

Ap—0 to 7 inches; dark brown (7.5YR 3/2) rubbed fine sand; weak fine granular structure; very friable; few coarse and many fine and medium roots; unrubbed color is a mixture of uncoated sand grains and black organic matter; very strongly acid; clear smooth boundary.
A12—7 to 17 inches; dark grayish brown (10YR 4/2) fine sand; weak fine granular structure; very friable; few medium and coarse roots; very strongly acid; abrupt wavy boundary.
A2—17 to 28 inches; light gray (10YR 7/2) fine sand; common, medium distinct dark grayish brown (10YR 4/2) streaks along old root channels; single grained; loose; few medium roots; very strongly acid; abrupt wavy boundary.
B21h—28 to 30 inches; very dark brown (10YR 2/2) fine sand; weak fine granular structure; very friable; massive and weakly cemented or brittle in less than 50 percent of horizon; extremely acid; clear wavy boundary.
B22h—30 to 35 inches; dark reddish brown (5YR 3/2) fine sand; weak fine granular structure; friable; massive and weakly cemented or brittle in less than 50 percent of horizon; sand grains coated with colloidal organic matter; very strongly acid; gradual wavy boundary.
B23h—35 to 47 inches; dark brown (7.5YR 3/2) fine sand; weak fine granular structure; friable; sand grains coated with colloidal organic matter; very strongly acid; gradual wavy boundary.
B24h—47 to 52 inches; dark yellowish brown (10YR 4/4) fine sand; weak fine granular structure; very friable; sand grains thinly coated with colloidal organic matter; very strongly acid; gradual wavy boundary.
B25h—52 to 54 inches; dark reddish brown (5YR 2/2) fine sand; weak fine granular structure; friable; sand grains coated with colloidal organic matter; very strongly acid; clear wavy boundary.
B21tg—54 to 68 inches; gray (5Y 5/1) sandy clay loam; moderate medium subangular blocky structure; firm; sand grains coated with clay; very strongly acid; gradual wavy boundary.
B22tg—68 to 80 inches; light greenish gray (5GY 7/1) sandy clay loam; massive in place; parts to weak

medium subangular blocky structure; firm; strongly acid.

Solum thickness ranges from 60 to 80 inches or more. Reaction ranges from extremely acid to strongly acid in the A and Bh horizons and from very strongly acid to neutral in the Btg horizon.

Thickness of the A horizon is less than 30 inches and combined thickness of the A and Bh horizon is more than 40 inches. The A horizon is sand or fine sand. The Ap or A1 horizon has hue of 10YR or 7.5YR, value of 2 to 4, and chroma of 2 or less. Where value is less than 3.5, thickness is less than 10 inches.

The A2 horizon has hue of 10YR, 2.5Y, or neutral, value of 5 to 8, and chroma of 0 to 2. In some pedons, this horizon has mottles of stronger chroma or vertical streaks of black, very dark gray, or gray.

The B2 horizon has hue of 10YR with value of 2 and chroma of 1 or 2, or with value of 3 and chroma of 2 or 3; hue of 7.5YR, value of 3, and chroma of 2; or hue of 5YR with value of 2 and chroma of 1 or 2 or with value of 3 and chroma of 2 to 4. The B24h horizon, where present, has hue of 10YR, value of 4, and chroma of 3 or 4, or hue of 7.5YR, value of 4, and chroma of 4. Consistence ranges from very friable to weakly cemented and brittle. All subhorizons of the Bh horizon are more than 50 percent friable or very friable. This horizon is sand, fine sand, or loamy fine sand.

The B21tg horizon has hue of 10YR or 5Y, value of 4 to 6, and chroma of 1 or 2. This horizon is sandy loam, fine sandy loam, or sandy clay loam. The B22tg horizon has hue of 5Y to 5GY, value of 5 to 7, and chroma of 1 or 2. Texture is sandy clay loam or sandy clay. In some pedons, few to common mottles of red, brown, yellow, or gray are in the B2tg horizon.

Chipley series

The Chipley series consists of somewhat poorly drained, rapidly permeable, nearly level soils on moderately low uplands. They formed in deposits of sandy marine sediment. Slopes range from 0 to 2 percent. The water table is within a depth of 20 to 40 inches for 2 to 4 months during most years. These soils are sandy, coated, thermic Aquic Quartzipsamments.

Chipley soils are associated with Albany, Ortega, and Rutlege soils. These soils are more poorly drained than the Ortega soils and have coated sand grains. These Chipley soils are better drained than Rutlege soils and do not have an umbric epipedon. Albany soils have a Bt horizon within a depth of 80 inches whereas Chipley soils are sandy to a depth of 80 inches or more.

Typical pedon of Chipley fine sand in a wooded area about 50 feet east of Florida Highway 36, 1.5 miles northwest of Capitola, NW1/4SE1/4 sec. 19, T. 1 N., R. 3 E.

A11—0 to 5 inches; very dark gray (10YR 3/1) fine sand; weak fine granular structure; very friable; many fine and medium roots; very strongly acid; clear smooth boundary.

A12—5 to 15 inches; dark grayish brown (10YR 4/2) fine sand; single grained; loose; many fine and medium roots; strongly acid; clear wavy boundary.

C1—15 to 23 inches; brown (10YR 5/3) fine sand; common medium distinct gray (10YR 5/1) mottles; single grained; loose; many fine roots; strongly acid; gradual wavy boundary.

C2—23 to 37 inches; brownish yellow (10YR 6/6) fine sand; common medium distinct gray (10YR 5/1) and yellowish brown (10YR 5/8) mottles; single grained; few fine roots; medium acid; gradual wavy boundary.

C3—37 to 47 inches; brownish yellow (10YR 6/6) fine sand; common medium distinct reddish yellow (7.5YR 6/8) and light gray (10YR 7/1) mottles; single grained; loose; very strongly acid; gradual wavy boundary.

C4—47 to 66 inches; brownish yellow (10YR 6/6) fine sand; single grained; loose; strongly acid; gradual wavy boundary.

C5—66 to 70 inches; light brownish gray (10YR 6/2) fine sand; single grained; loose; medium acid; gradual wavy boundary.

C6—70 to 80 inches; light gray (10YR 7/1) fine sand; single grained; loose; slightly acid.

Soil reaction ranges from very strongly acid to slightly acid in all horizons.

The A1 or Ap horizon has hue of 10YR with value of 3 through 5 and chroma of 1 or 2 or with value of 2 and chroma of 1. Thickness ranges from 4 to 15 inches. Where value is less than 3.5, thickness is less than 10 inches.

The C horizon has hue of 10YR with value of 7 and chroma of 1 through 8, with value of 5 or 6 and chroma of 2 through 8, or with value of 4 and chroma of 3; hue of 2.5Y, value of 6 through 8, and chroma of 4; hue of 7.5YR, value of 5, and chroma of 6; or hue of 5Y, value of 7, and chroma of 3. Common to many gray and yellowish red or reddish yellow iron segregated mottles are within depths of 30 to 40 inches.

Dorovan series

The Dorovan series consists of very poorly drained, moderately permeable, nearly level soils in depressional areas and on flood plains of tributaries of major streams. They formed in thick deposits of highly decomposed organic materials. Slopes are less than 1 percent. The water table is above the surface 5 to 8 months in most years and within a depth of 10 inches the rest of the year. These soils are flooded frequently. These soils are dysic, thermic Typic Medisaprists.

Dorovan soils are closely associated with Pamlico, Pelham, Plummer, and Rutlege soils. All but Pamlico are mineral soils. Dorovan soils have layers of organic material more than 51 inches thick; Pamlico soils have mineral material within a depth of 51 inches.

Typical pedon of Dorovan mucky peat in a swamp about 200 feet west and 200 feet south of the second bridge from Jefferson County line on Tram Road, SW1/4NW1/4 sec. 25, T. 1 S., R. 2 E.

Oe—0 to 5 inches; black (10YR 2/1) mucky peat consisting of partly decomposed moss, leaves, roots, and twigs; 25 percent fiber content after rubbing; slightly sticky; very strongly acid; gradual wavy boundary.

Oa1—5 to 16 inches; black (10YR 2/1), rubbed muck; very dark brown (10YR 2/2) pressed; about 25 percent fiber, less than 5 percent rubbed; fiber remaining after rubbing is partly decomposed wood 1 to 2 millimeters; massive; common to few roots; very strongly acid; diffuse wavy boundary.

Oa2—16 to 65 inches; very dark brown (10YR 2/2) rubbed muck; very dark gray (10YR 3/1) pressed; about 10 percent fiber less than 2 percent rubbed; fiber remaining after rubbing is partly decomposed wood 1 to 2 millimeters; massive; few roots that decrease with depth; very strongly acid; abrupt wavy boundary.

IIC1g—65 to 69 inches; very dark gray (10YR 3/1) sandy loam; massive; friable; very strongly acid; gradual wavy boundary.

IIC2g—69 to 80 inches; black (N 2/0) sand; single grained; friable; very strongly acid.

Thickness of the Oe and Oa horizons is more than 51 inches. Reaction is very strongly acid or extremely acid throughout.

The Oe horizon has hue of 10YR with value of 2, chroma of 1 or 2, or with value of 3 and chroma of 2. Fiber content is from 35 to 50 percent after rubbing.

The Oa horizon has hue of 10YR, value of 2 or 3, and chroma of 1 or 2. Fiber content is less than 10 percent after rubbing.

The IICg horizon ranges from sand to sandy clay loam that has hue of 10YR, value of 2 to 5, and chroma of 1 or 2; or hue of N and value of 2 to 5.

Dothan series

The Dothan series consists of well drained, moderately slowly permeable, gently sloping to sloping soils on undulating uplands and hillsides leading to drainageways. They formed in thick beds of unconsolidated loamy marine sediment. Slopes range from 2 to 8 percent. A water table is perched above the lower part of the subsoil briefly during wet periods. These soils are fine-loamy, siliceous, thermic Plinthic Paleudults.

Dothan soils are closely associated with Fuquay, Leefield, Norfolk, Ocilla, and Orangeburg soils. Fuquay, Leefield, and Ocilla soils each have an A horizon 20 to 40 inches thick. In addition, Leefield, soils are more poorly drained and Ocilla soils do not have plinthite within a depth of 60 inches. Norfolk and Orangeburg soils have less than 5 percent plinthite within a depth of 60 inches. Orangeburg soils also have redder colors in the subsoil.

Typical pedon of Dothan loamy fine sand, 2 to 5 percent slopes, in wooded areas approximately 3 miles north of U.S. Highway 90 on Florida Highway 59 on east side of road across from church SW1/4NE1/4 sec. 20, T. 2 N., R. 3 E.

A1—0 to 5 inches; brown (10YR 4/3) loamy fine sand; weak fine granular structure; very friable; many fine roots; strongly acid; clear smooth boundary.

A2—5 to 13 inches; yellowish brown (10YR 5/4) loamy fine sand; weak fine granular structure; very friable; common fine roots; strongly acid; gradual smooth boundary.

B21t—13 to 19 inches; yellowish brown (10YR 5/8) fine sandy loam; weak medium subangular blocky structure, parting to moderate medium granular; friable; common fine roots; medium acid; gradual wavy boundary.

B22t—19 to 38 inches; yellowish brown (10YR 5/8) sandy clay loam; weak coarse subangular blocky structure; friable; few fine roots; few fine pores; thin discontinuous clay films on many faces of peds; prominent clay bridging between sand grains; medium acid; clear irregular boundary.

B23t—38 to 46 inches; yellowish brown (10YR 5/8) sandy clay loam; weak coarse subangular blocky structure; firm; discontinuous clay films on many faces of peds; few fine and medium pores; about 8 percent red (10YR 4/8) plinthite; medium acid; clear irregular boundary.

B24t—46 to 58 inches; reticulately mottled brownish yellow (10YR 6/6), yellow (10YR 7/6), light gray (10YR 7/1), strong brown (7.5YR 5/8), red (2.5YR 4/8), and light red (2.5YR 6/6) sandy clay loam; moderate medium subangular blocky structure to weak medium platy; very firm; common moderately thick clay films on faces of peds; common 1/16- to 1/18-inch diameter round and oblong voids that have clay films on inside surfaces; about 5 to 7 percent plinthite; medium acid; gradual irregular boundary.

B25t—58 to 75 inches; mottled brownish yellow (10YR 6/6), yellow (10YR 7/6), light gray (10YR 7/1), strong brown (7.5YR 5/8), red (2.5YR 4/8) and light red (2.5YR 6/6) sandy clay loam; red mottles are mostly very coarse, others are fine and medium, gray mottles mostly vertical oriented; many red mottles have very thin streaks of gray intermixed; very coarse subangular blocky structure becoming massive with depth; firm, compact; few thin discontinuous clay films on few peds; about 5 percent plinthite; strongly acid.

Solum thickness ranges from 60 to 80 inches or more. Depth to plinthite ranges from 24 to 50 inches. Soil

reaction is very strongly acid or strongly acid in the A horizon and ranges from very strongly acid to medium acid in the subsoil.

Thickness of the A horizon ranges from 6 to 17 inches. The Ap or A1 and A2 horizons have hue of 10YR with value of 5 and chroma of 2 to 4, with value of 4 and chroma of 2 or 3, or with value of 6 and chroma of 4; or hue of 2.5Y with value of 5 and chroma of 2 or 4 or with value of 6 and chroma of 4. Some pedons have a thin A1 horizon that has hue of 10YR, value of 3 or 4, and chroma of 2.

The B21t, B22t, and B23t horizons have hue of 10YR, values of 5 or 6, and chroma of 6 or 8. Texture is fine sandy loam or sandy clay loam. Weighted clay content of the upper 20 inches of the B2t horizon is 18 to 35 percent.

The B24t and B25t horizons are mottled yellow, brown, red, and gray in hues of 10YR, 7.5YR, and 2.5YR. Texture is sandy clay loam, but in some pedons it is sandy clay. Plinthite in the B2t horizon is within a depth of 60 inches and ranges from 5 to about 10 percent.

Faceville series

The Faceville series consists of well drained, moderately permeable, gently sloping to strongly sloping soils on rolling uplands. They formed in clayey marine sediments. Slopes range from 2 to 12 percent. The water table is below a depth of 72 inches. These soils are clayey, kaolinitic, thermic Typic Paleudults.

Faceville soils are closely associated with Dothan, Fuquay, Lucy, Norfolk, and Orangeburg soils. Orangeburg and Norfolk are in a fine-loamy siliceous family. Dothan soils have more than 5 percent plinthite within a depth of 60 inches. Fuquay and Lucy soils each have an A horizon 20 to 40 inches thick.

Typical pedon of Faceville sandy loam, 5 to 8 percent slopes along a road cut 1 mile south of State Highway 12 on Meridian Road NW1/4SE1/4 sec. 18, T. 3 N., R. 1 E.

Ap—0 to 6 inches; dark grayish brown (10YR 4/2) sandy loam; weak fine granular structure; very friable; many fine roots; slightly acid; clear smooth boundary.

A2—6 to 13 inches; strong brown (7.5YR 5/8) sandy loam; weak coarse subangular blocky structure; friable; few roots; strongly acid; abrupt wavy boundary.

B21t—13 to 25 inches; yellowish red (5YR 5/8) sandy clay; moderate medium subangular blocky structure; friable; sand grains coated and bridged with clay; common thin clay films on faces of peds; strongly acid; gradual wavy boundary.

B22t—25 to 54 inches; red (2.5YR 5/8) clay; moderate medium subangular blocky structure; friable; clay bridging between sand grains; common clay films in decayed root channels and on some ped surfaces; very strongly acid; clear wavy boundary.

B23t—54 to 62 inches; red (2.5YR 5/8) sandy clay; few to common medium distinct reddish yellow (7.5YR 7/6) and strong brown (7.5YR 5/8) mottles; moderate medium subangular blocky structure; friable; sand grains coated and bridged with clay; common thin clay films on faces of peds; strongly acid; gradual wavy boundary.

B3—62 to 80 inches; coarsely mottled yellowish red (5YR 4/6), strong brown (7.5YR 5/6, 5/8) and dusky red (10R 3/4) heavy sandy clay loam; moderate medium subangular blocky structure; friable; few fine distinct white (10YR 8/2) mottles of kaolin clay; strongly acid.

Solum thickness ranges from 65 to 80 inches or more. Soil reaction is strongly acid to very strongly acid in all horizons except the surface layer in limed areas.

The A horizon ranges from 5 to 18 inches thick. The Ap or A1 horizon has hue of 10YR with value of 4 and chroma of 2 to 4 or with value of 5 and chroma of 2. The A2 horizon, where present, has hue of 7.5YR or 10YR, value of 4 through 6, and chroma of 4 through 8.

The B2t horizon has hue of 2.5YR, or 5YR, value of 4 or 6, and chroma of 4 through 8. Texture is clay or sandy clay. Average clay content is more than 35 percent. Mottles in shades of yellow, brown, and red range from few to common in B23t horizons.

The B3 horizon is coarsely mottled in shades of yellow, white, strong brown, red, and dark red in hues of 10YR, 7.5YR, and 2.5YR, and 10R. It is heavy sandy clay loam or sandy clay.

Foxworth series

The Foxworth series consists of deep, moderately well drained, very rapidly permeable, nearly level to gently sloping soils on rolling sandhills of the lower coastal plain. They formed in thick deposits of sandy marine or eolian sediments. The water table is between depths of 40 to 72 inches for 1 to 3 months. These soils are thermic, coated Typic Quartzipsamments.

Foxworth soils are associated with Alpin, Chipley, and Ortega soils. Foxworth soils are better drained than the Chipley soils and more poorly drained than the Aplin and Ortega soils. In addition, Foxworth soils do not have the thin lamellae that are in Alpin soils.

Typical pedon of Foxworth sand in a wooded area 0.45 mile east of Forest Road 305A, 200 feet north of Forest Road 305, NE1/4NE1/4 sec. 28, T. 1 S., R. 2 W.

A1—0 to 4 inches; gray (10YR 5/1) sand; single grained; loose; many fine, medium and coarse roots; strongly acid; clear wavy boundary.

C1—4 to 9 inches; pale brown (10YR 6/3) sand; single grained; loose; many fine, medium, and coarse roots; strongly acid; gradual wavy boundary.

C2—9 to 36 inches; very pale brown (10YR 7/4) sand; white (10YR 8/2) sand stripping; single grained; loose; many fine and medium roots; very strongly acid; gradual wavy boundary.

C3—36 to 46 inches; very pale brown (10YR 8/4) sand; common medium distinct white (10YR 8/2) and common fine distinct yellow (10YR 7/6) mottles; single grained; loose; very strongly acid; gradual wavy boundary.

C4—46 to 54 inches; white (10YR 8/1) sand; common medium distinct very pale brown (10YR 8/4) and few fine distinct strong brown (7.5YR 5/8) mottles; single grained; loose; very strongly acid; clear wavy boundary.

C5—54 to 64 inches; brownish yellow (10YR 6/6) sand; common medium distinct white (10YR 8/1), few fine distinct yellowish red (5YR 5/8) and few fine distinct yellowish red (5YR 5/6) mottles; single grained; loose; strongly acid; abrupt wavy boundary.

C6—64 to 80 inches; brown (10YR 5/3) sand; few fine distinct yellowish red (5YR 5/6) and few fine faint dark reddish gray mottles; weak fine granular structure; slight increase in clay content; very friable; very strongly acid.

Soil reaction is strongly acid or very strongly acid throughout.

The A horizon has hue of 10YR, value of 3 through 5, and chroma of 1 or 2.

The C1 and C2 horizons have hue of 10YR, value of 5 to 7 and chroma of 3 to 8. Few to common fine to large pockets or mottles of uncoated sand grains occur in these horizons in some pedons but are not indicative of wetness.

The C3, C4, and C5 horizons have hue of 10YR, value of 6 to 8, and chroma of 1 to 4 that has few to common, fine, or medium brownish, yellowish, or reddish segregated iron mottles. Depth to mottles is commonly 45 to 60 inches but ranges from 40 to 72 inches. The C6 horizon as described is not present in all pedons.

Fuquay series

The Fuquay series consists of well drained, slowly permeable, nearly level to gently sloping soils on uplands. They formed in thick deposits of sandy and loamy marine sediments. A perched water table is above the reticulately mottled Bt horizon briefly during wet periods. Slopes range from 0 to 8 percent. These soils are loamy, siliceous, thermic Arenic Plinthic Paleudults.

Fuquay soils are closely associated with Dothan, Leefield, Norfolk, Ocilla, and Wagram soils. Dothan and Norfolk soils have an A horizon less than 20 inches thick and, in addition, Norfolk soils have less than 5 percent plinthite within a depth of 60 inches. Leefield and Ocilla soils are somewhat poorly drained. Wagram soils have less than 5 percent plinthite within a depth of 60 inches.

Typical pedon of Fuquay fine sand in wooded area 2.5 miles east of Baum Road, 1,500 feet north of U.S. 90 SW1/4SW1/4 sec. 32, T. 2 N., R. 3 E.

A1—0 to 7 inches; grayish brown (10YR 5/2) fine sand; moderate fine and medium crumb structure; very friable; many fine and medium roots; medium acid; gradual wavy boundary.

A21—7 to 14 inches; mixed yellowish brown (10YR 5/4) and brownish yellow (10YR 6/6) fine sand; single grained; loose; very friable; few fine, medium and coarse roots; medium acid; clear wavy boundary.

A22—14 to 21 inches; yellowish brown (10YR 5/6) fine sand; single grained; loose; few fine, medium and coarse roots; strongly acid; gradual wavy boundary.

A23—21 to 37 inches; yellowish brown (10YR 5/8) loamy fine sand; weak medium subangular blocky structure; very friable; few medium roots; strongly acid; gradual wavy boundary.

B21t—37 to 49 inches; yellowish brown (10YR 5/8) sandy clay loam; moderate medium subangular blocky structure; friable; few medium roots; clay bridges between sand grains; strongly acid; gradual wavy boundary.

B22t—49 to 64 inches; yellowish brown (10YR 5/8) sandy clay loam; moderate medium subangular blocky structure; firm; thin patchy clay films on faces of peds; estimated 5 to 7 percent red (2.5YR 5/8) plinthite; strongly acid; gradual wavy boundary.

B23t—64 to 80 inches; reticulately mottled red (2.5YR 5/8), and yellowish brown (10YR 5/8) sandy clay loam and light gray (10YR 7/1) sandy clay; moderate coarse columnar structure parting to moderate fine and medium angular and subangular blocky; firm; sand grains coated with clay; very strongly acid.

Solum thickness is more than 80 inches. Depth to plinthite ranges from 45 to 60 inches. Reaction is very strongly acid or strongly acid throughout except for the surface layer in limed areas.

Thickness of the A horizon is 20 to 40 inches. The Ap or A1 horizon has hue of 10YR, value of 4 or 5, and chroma of 1 or 2. Thickness ranges from 3 to 9 inches. The A2 horizon has hue of 10YR, value of 5 through 7, and chroma of 3 through 6.

The B21t and B22t horizon has hue of 10YR, value of 5, and chroma of 4 to 8; hue of 7.5YR, value of 5, and chroma of 4 to 8; or hue of 2.5Y with value of 4 and chroma of 4, with value of 5 and chroma of 4 or 6, or with value of 6 and chroma of 6 or 8. Texture is fine sandy loam or sandy clay loam. Content of plinthite ranges from about 5 to 10 percent.

The B23t horizon is reticulately mottled in shades of red, brown, yellow, and gray. The reddish, yellowish, and brownish parts are sandy loam or sandy clay loam, and the gray parts are heavy sandy clay loam or sandy clay. Overall texture of the B23t horizon ranges from sandy clay loam to light sandy clay.

Kershaw series

The Kershaw series consists of excessively drained, very rapidly permeable, nearly level to sloping soils on high uplands. They formed in thick deposits of coastal marine sediments. Slopes range from 0 to 8 percent. Depth to the water table is more than 80 inches. These soils are thermic, uncoated Typic Quartzipsamments.

Kershaw soils are closely associated with Alpin, Lakeland, Ortega, and Troup soils. Lakeland soils are in a coated family and Troup soils have an argillic horizon within a depth of 80 inches. Kershaw soils do not have the thin lamellae of Alpin soils, and they are better drained than the Ortega soils. All of these soils are in similar positions.

Typical pedon of Kershaw sand, 0 to 5 percent slopes in a wooded area 3.75 miles east of Capital Circle East, 40 feet south of Tram Road, SE1/4NE1/4 sec. 25, T. 1 S., R. 1 E.

A1—0 to 7 inches; grayish brown (10YR 5/2) sand; single grained; loose; many fine and medium roots; strongly acid; clear smooth boundary.

C1—7 to 11 inches; very pale brown (10YR 7/4) sand; single grained; loose; few fine and medium roots; sand grains are uncoated; strongly acid; gradual wavy boundary.

C2—11 to 21 inches; yellow (10YR 7/6) sand; pale brown (10YR 6/3) organic stains; single grained; loose; few medium and coarse roots; sand grains are uncoated; medium acid; gradual wavy boundary.

C3—21 to 44 inches; yellow (10YR 7/8) sand; single grained; loose; very few medium and coarse roots; sand grains are uncoated; medium acid; gradual wavy boundary.

C4—44 to 63 inches; yellow (10YR 8/6) sand; single grained; loose; sand grains are uncoated; medium acid; gradual wavy boundary.

C5—63 to 80 inches; pale yellow (2.5Y 8/4) sand; single grained; loose; sand grains are uncoated; medium acid.

Soil reaction ranges from strongly acid to medium acid.

A1 or Ap horizon has hue of 10YR, value of 4 or 5 and chroma of 1 or 2. Thickness ranges from 2 to 7 inches.

The C horizon has hue of 10YR with value of 5 and chroma of 4 or 6, with value of 6 and chroma of 3 to 8, with value of 7 and chroma of 4 to 8, or with value of 8 and chroma of 3 to 6. The horizon is sand or fine sand. Silt plus clay in the 10- to 40-inch control section is less than 5 percent.

Lakeland series

The Lakeland series consists of excessively drained, very rapidly permeable, nearly level to gently sloping soils on high upland areas. They formed in thick deposits of marine eolian or fluvial sand deposits. Slopes range from 0 to 5 percent. The water table is below a depth of 80 inches. These soils are thermic, coated Typic Quartzipsamments.

Lakeland soils are closely associated with Chipley, Kershaw, Orangeburg, Ortega, and Troup soils. Chipley soils are somewhat poorly drained. Kershaw soils are in an uncoated family. Orangeburg and Troup soils have an argillic horizon. Ortega soils are in an uncoated family and have a seasonal high water table within a depth of 80 inches.

Typical pedon of Lakeland sand in a pine plantation 0.7 mile west of Capital Circle east, 170 feet south of Tram Road SE1/4NE1/4 sec. 20, T. 1 S., R. 1 E.

A1—0 to 5 inches; grayish brown (10YR 5/2) sand; single grained; loose; few coarse, many fine and medium roots; very strongly acid; clear smooth boundary.

C1—5 to 20 inches; light yellowish brown (10YR 6/4) sand; single grained; loose; many medium and few fine and coarse roots; few uncoated sand grains; strongly acid; gradual wavy boundary.

C2—20 to 32 inches; reddish yellow (7.5YR 7/6) sand; single grained; loose; few medium and coarse roots; few uncoated sand grains; strongly acid; gradual wavy boundary.

C3—32 to 41 inches; reddish yellow (7.5YR 7/8) sand; single grained; loose; few fine roots; few uncoated sand grains; strongly acid; gradual wavy boundary.

C4—41 to 78 inches; reddish yellow (7.5YR 6/8) sand; single grained; loose; few to common uncoated sand grains; strongly acid; gradual wavy boundary.

C5—78 to 91 inches; reddish yellow (5YR 6/8) sand; single grained; loose; common uncoated sand grains; strongly acid.

Soil reaction ranges from very strongly acid to medium acid throughout. In the 10- to 40-inch control section silt plus clay content is 5 to 10 percent.

The A horizon has hue of 10YR with value of 4 and chroma of 1 to 3 or with value of 5 and chroma of 1 or 2. Thickness ranges from 3 to 6 inches.

The C horizon has hue of 10YR with value of 5 and chroma of 4 to 8, or with value of 6 or 7 and chroma of 3 to 8; hue of 7.5YR, value of 5 to 7, and chroma of 6 or 8; or hue of 5YR, value of 5 or 6, and chroma of 6 or 8. Most of the sand grains in the 10- to 40-inch control section are coated. In some pedons, there are small pockets of white or light gray uncoated sand grains below a depth of 40 inches. The C horizon extends to more than 80 inches.

Leefield series

The Leefield series consists of somewhat poorly drained, moderately slowly permeable, nearly level soils along drainageways and on low foot slopes of hillsides.

They formed in thick deposits of sandy and loamy marine sediments. Slopes are 0 to 2 percent. A water table is at a depth of 18 to 30 inches for about 4 months. These soils are loamy, siliceous, thermic Arenic Plinthaquic Paleudults.

Leefield soils are closely associated with Albany, Dothan, Fuquay, Lakeland, and Ocilla soils. Albany and Ocilla soils have less than 5 percent plinthite although Leefield soils have more. In addition, Albany soils have an A horizon more than 40 inches thick. Dothan soils have an A horizon less than 20 inches thick and are well drained. Fuquay soils are well drained and do not have gray mottles within 30 inches of the surface. Lakeland soils are sandy to a depth of 80 inches or more and are excessively drained.

Typical pedon of Leefield loamy sand in a cultivated area 2.75 miles east of Capital Circle, 150 feet north of U.S. Highway 27, NE1/4SE1/4 sec. 1, T. 1 S., R. 1 E.

Ap—0 to 10 inches; very dark grayish brown (10YR 3/2) loamy sand; moderate medium granular structure; very friable; many fine roots; medium acid; abrupt wavy boundary.

A21—10 to 19 inches; grayish brown (10YR 5/2) loamy sand; few pockets of light yellowish brown (10YR 6/4); weak fine granular structure; very friable; few fine roots; strongly acid; clear wavy boundary.

A22—19 to 23 inches; yellow (10YR 7/6) loamy sand; few fine distinct pale brown (10YR 6/3) and olive gray (5Y 5/2) mottles; weak fine granular structure; very friable; few fine roots; strongly acid; clear wavy boundary.

A23—23 to 36 inches; yellow (10YR 7/6) loamy sand; common fine and medium distinct brownish yellow (10YR 6/8) mottles; weak fine granular structure; very friable; few fine and medium roots; less than 3 percent yellowish red (5YR 5/6) and reddish yellow (7.5YR 6/8) plinthite; strongly acid; abrupt wavy boundary.

B21t—36 to 51 inches; light yellowish brown (10YR 6/4) sandy clay loam; many medium and coarse distinct yellowish brown (10YR 5/8) and light gray (10YR 7/1) mottles; weak medium and coarse subangular blocky structure; friable; estimated 5 to 7 percent yellowish red (5YR 5/6) and reddish yellow (7.5YR 6/8) plinthite; very strongly acid; gradual wavy boundary.

B22t—51 to 80 inches; yellowish brown (10YR 5/6) sandy clay loam; many medium and coarse distinct gray (10YR 6/1) and yellowish brown (10YR 5/8) mottles; weak medium and coarse subangular blocky structure; friable; very strongly acid.

Solum thickness ranges from 60 to 80 inches or more. Depth to horizons with more than 5 percent plinthite ranges from 30 to 60 inches. Unless the soil is limed, reaction is very strongly acid.

Thickness of the A horizon ranges from 20 to 40 inches. The Ap or A1 horizon has hue of 10YR or 2.5Y, value of 3 to 5, and chroma of 0 to 2. Thickness of this horizon ranges from 4 to 12 inches. The A2 horizon has hue of 10YR, value of 5 to 8, and chroma of 2 to 6 and has none to common gray, brown, and yellow mottles.

The B21t and B22t horizons have hue of 10YR or 2.5Y, value of 5 to 7, chroma of 4 to 8 that have common to many gray, brown, and red mottles. In some pedons, the B22t horizon is reticulately mottled gray, brown, red, and yellow. The Bt horizon is sandy loam or sandy clay loam.

Leon series

The Leon series consists of poorly drained, moderately to moderately rapidly permeable, nearly level soils on broad flatwood areas and, in some places, along drainageways. They formed in thick beds of acid sandy marine sediments. Slopes are less than 2 percent. The water table is at a depth of 10 to 40 inches for more than 9 months and at a depth of less than 10 inches for 1 to 4 months during periods of high rainfall. These soils are sandy, siliceous, thermic Aeric Haplaquods.

Leon soils are closely associated with Rutlege, Sapelo, and Talquin soils. Talquin soils have a less well developed spodic horizon. Sapelo soils have an argillic horizon beneath the spodic horizon. Rutlege soils have an umbric epipedon but do not have a spodic horizon.

Typical pedon of Leon sand, in a wooded area about 5 miles east of Capital Circle, 400 yards of Tram Road, NE1/4SW1/4 sec. 29, T. 1 S., R. 2 E.

A1—0 to 6 inches; dark gray (10YR 4/1) rubbed sand; weak, coarse granular structure; friable; many fine and medium and few coarse roots; extremely acid; clear smooth boundary.

A21—6 to 13 inches; light brownish gray (10YR 6/2) sand; single grained; loose; many fine and medium roots; very strongly acid; gradual wavy boundary.

A22—13 to 25 inches; light gray (10YR 7/2) sand; single grained; loose; many fine roots; very strongly acid; abrupt wavy boundary.

B21h—25 to 29 inches; black (5YR 2/1) loamy sand; weak coarse subangular blocky structure; friable, slight cementation; sand grains well coated with organic matter; extremely acid, abrupt wavy boundary.

B22h—29 to 36 inches; dark reddish brown (5YR 3/3) sand; weak coarse subangular blocky structure; friable; sand grains well coated with organic matter; very strongly acid; gradual wavy boundary.

B23h—36 to 41 inches; dark reddish brown; (5YR 2/2) sand; weak medium subangular blocky structure; friable; sand grains well coated with organic matter; very strongly acid; abrupt wavy boundary.

B31—41 to 50 inches; dark yellowish brown (10YR 4/4) sand; single grained; loose; strongly acid; gradual wavy boundary.

B32—50 to 80 inches; dark yellowish brown (10YR 3/4) sand; single grained; loose; very strongly acid.

Depth to the Bh horizon ranges from 20 to 30 inches. Reaction ranges from strongly acid to extremely acid in all horizons.

The A1 or Ap horizon has color in hue of 10YR, value of 2 through 4, chroma of 1 or 2. When dry, this horizon has a salt-and-pepper appearance caused by the mixing of organic matter and white sand grains.

The A2 horizon has hue of 10YR, value of 5 through 8, and chroma of 2 or less.

The Bh horizon has hue of 10YR, 7.5YR, or 5YR, value of 2 or 3, and chroma of 1 through 3. This horizon is noncemented. Texture is sand or loamy sand.

The B3 horizon has hue of 10YR or 7.5YR, value of 3 or 4, and chroma of 2 to 4 that has or does not have mottles of gray, brown, or yellow.

The C horizon, where present, has hue of 10YR, value of 6 through 8, and chroma of less than 4.

Lucy series

The Lucy series consists of well drained, moderately permeable, nearly level to sloping soils on upland ridges and hillsides. They formed in unconsolidated marine sandy and loamy sediments. Slopes range from 0 to 8 percent. The water table is below 80 inches. These soils are loamy, siliceous, thermic Arenic Paleudults.

Lucy soils are closely associated with Orangeburg, Troup, and Wagram soils. Orangeburg soils do not have an A horizon 20 to 40 inches thick that is characteristic of Lucy soils. Troup soils have an A horizon greater than 40 inches thick. Wagram soils do not have the darker red colors in the Bt horizon that are in Lucy soils.

Typical pedon of Lucy fine sand, 5 to 8 percent slopes, in field 400 feet south of U.S. Highway 27 on Bainbridge Road and 200 feet west of pavement, SE1/4NE1/4 sec. 31, T. 2 N., R. 1 W.

Ap—0 to 5 inches; dark brown (10YR 4/3) fine sand; weak fine granular structure; very friable; many fine and medium roots; medium acid; clear smooth boundary.

A12—5 to 13 inches; brown (10YR 5/3) fine sand; single grained; loose; many fine and medium roots; medium acid; gradual smooth boundary.

A21—13 to 22 inches; reddish yellow (7.5YR 6/6) fine sand; single grained; loose; many medium and few fine roots; strongly acid; gradual smooth boundary.

A22—22 to 30 inches; strong brown (7.5YR 5/8) fine sand; single grained; loose; few light gray (10YR 7/1) uncoated sand grain splotches and thin yellowish red (5YR 5/8) lenses of loamy fine sand; few medium roots; strongly acid; gradual smooth boundary.

B21t—30 to 36 inches; yellowish red (5YR 5/8) fine sandy loam; weak medium subangular blocky structure; very friable; few medium roots; sand grains coated and bridged with clay; strongly acid; abrupt smooth boundary.

B22t—36 to 75 inches; red (2.5YR 5/8) sandy clay loam; moderate medium subangular blocky structure; friable; sand grains coated and bridged with clay; strongly acid; clear smooth boundary.

B3—75 to 80 inches; yellowish red (5YR 5/8) fine sandy loam; weak medium subangular blocky structure; friable; strongly acid.

Unless the soil is limed, reaction is strongly acid or very strongly acid.

Thickness of the A horizon ranges from 20 to 40 inches. The Ap or A1 horizon ranges from 4 to 13 inches thick. It has hue of 10YR, value of 4 or 5, and chroma of 2 or 3. The A2 horizon has hue of 10YR, with value of 4 and chroma of 4, with value of 5 and chroma of 4 to 8; or with value of 6 and chroma of 3 to 6; or hue of 7.5YR with value of 4 and chroma of 4, with value of 5 and chroma of 6 or 8, or with value of 6 and chroma of 6.

The B2t horizon has hue of 2.5YR or 5YR, value of 4 or 5, and chroma of 6 or 8. Texture is fine sandy loam or sandy clay loam. The B3 horizon where present, has the same color as the B2t horizon, and texture of fine sandy loam or loamy fine sand. Depth to the B3 horizon is more than 60 inches.

Lutterloh series

The Lutterloh series consists of somewhat poorly drained, slowly permeable, nearly level to gently sloping soils on broad upland flatwoods. They formed in unconsolidated sandy and loamy marine sediments. Slopes range from 0 to 5 percent. A water table is within a depth of 20 to 30 inches for 2 to 4 months. These soils are loamy, siliceous, thermic Grossarenic Paleudalfs.

Lutterloh soils are closely associated with Chaires, Leon, and Talquin soils. Lutterloh soils are better drained and do not have the spodic horizon of all the associated soils.

Typical pedon of Lutterloh fine sand in wooded area, 4 miles east of Woodville, 50 feet south of Natural Bridge Road, SE1/4NE1/4 sec. 23, T. 2 S., R. 1 E.

Ap—0 to 7 inches; grayish brown (10YR 5/2) fine sand; weak fine granular structure; very friable; many fine and medium roots; strongly acid; clear wavy boundary.

A21—7 to 24 inches; mixed light gray (10YR 7/2) and white (10YR 8/2) fine sand; single grained; loose; few fine medium and coarse roots; many uncoated sand grains; strongly acid; gradual wavy boundary.

A22—24 to 40 inches; mixed white (10YR 8/2) and light gray (5Y 7/2) fine sand; single grained; loose; few fine roots; sand grains mostly uncoated; strongly acid; clear wavy boundary.

A23—40 to 59 inches; white (5Y 8/1) fine sand with common coarse faint white (5Y 8/2) mottles; single grained; loose; sand grains mostly uncoated; medium acid; clear wavy boundary.

B21tg—59 to 71 inches; gray (5Y 6/1) very fine sandy loam; many medium prominent strong brown (7.5YR 5/8) mottles; moderate fine and medium subangular blocky structure; friable; sand grains bridged and coated with clay; medium acid; clear wavy boundary.

IIB22tg—71 to 94 inches; light gray (5Y 7/1) sandy clay; weak medium platy structure, parting to weak medium subangular blocky; friable to firm; sand grains coated and bridged with clay; strongly acid.

The soil is strongly acid or medium acid throughout.

Thickness of the A horizon is dominantly 42 to 65 inches. The A1 or Ap horizon has hue of 10YR, value of 3 to 5, and chroma of 1 or 2. The A2 horizon has hue of 10YR to 5Y, value of 6 to 8, and chroma of 3 or less. Some pedons have mottles of stronger chroma in this horizon. Color is that of uncoated sand grains.

The B21tg and IIB22tg horizons have hue of 10YR to 5Y, value of 5 to 7, and chroma of 2 or less with none to common mottles of brown, yellow, or red. Texture of the B21t horizon ranges from sandy loam to sandy clay loam; texture of the IIB22tg horizon is sandy clay loam or sandy clay. Average clay content of upper 20 inches of the argillic horizon ranges from 18 to 35 percent. Depth to the IIB22tg horizon ranges from 65 to 75 inches.

Lynchburg series

The Lynchburg series consists of somewhat poorly drained, moderately permeable, nearly level soils in shallow depressional areas and on broad interstream divides. They formed in thick marine sediments of loamy texture. Slopes range from 0 to 2 percent. The water table is within a depth of 6 to 20 inches for 1 to 3 months in spring and winter during most years. These soils are fine-loamy, siliceous, thermic Aeric Paleaquults.

Lynchburg soils are closely associated with Norfolk, Ocilla, Orangeburg, Pelham, and Yonges soils. Norfolk and Orangeburg soils are well drained and are on higher elevations than Lynchburg soils. Ocilla and Pelham soils have a thicker A horizon. Pelham and Yonges soils are more poorly drained and are on slightly lower elevations.

Typical pedon of Lynchburg fine sandy loam in a wooded area 3/4 mile south of Lake Iamonia on Bull Headly Road, 1,000 feet west of road, SE1/4SE1/4 sec. 7, T. 3 N., R. 1 W.

A1—0 to 8 inches; very dark grayish brown (10YR 3/2) fine sandy loam; weak fine granular structure; friable; many fine roots; strongly acid; abrupt smooth boundary.

A2—8 to 18 inches; grayish brown (10YR 5/2) fine sandy loam, few fine faint gray mottles; weak, coarse medium granular structure; friable; many fine and medium roots; strongly acid; clear wavy boundary.

B21t—18 to 30 inches; brown (10YR 5/3) sandy clay loam; many fine and medium distinct gray (10YR 6/1) and yellowish brown (10YR 5/8) mottles; weak medium subangular blocky structure; friable; few medium and coarse roots; sand grains coated and bridged with clay; strongly acid; gradual wavy boundary.

B22t—30 to 65 inches; grayish brown (10YR 5/2) sandy clay loam; common medium distinct gray (10YR 5/1) mottles; moderate medium subangular blocky structure; friable; few coarse roots; sand grains coated and bridged with clay; very strongly acid; gradual wavy boundary.

Cg—65 to 80 inches; gray (10YR 6/1) sandy clay loam; many medium distinct brownish yellow (10YR 6/6) and gray (10YR 5/1) mottles; massive; friable; very strongly acid.

Solum thickness is more than 60 inches. Soil reaction is strongly acid or very strongly acid throughout.

Thickness of the A horizon is less than 20 inches. The A1 or Ap horizon has hue of 10YR, value of 2 to 4, and chroma of 1 or 2; hue of 2.5YR, value of 3 or 4, and chroma of 2; or hue of N and value of 2 to 4. This horizon is 6 to 8 inches thick. The A2 horizon has hue of 10YR, value of 4 to 7, and chroma of 1 to 4; hue of 2.5Y, value of 4 to 7, and chroma of 2 or 4; or hue of N and value of 4 to 7 that has mottles in shades of yellow, brown, or gray.

The B21t horizon has hue of 10YR, value of 5 or 6, and chroma of 3 through 8; or hue of 2.5Y, value of 5 or 6, and chroma of 4 or 6. Mottles that have chroma of 2 or less are few to many.

The B22t horizon has hue of 10YR, value of 4 to 7, and chroma of 1 or 2 that has common to many mottles of higher chroma. The Bt horizon is fine sandy loam or sandy clay loam. The clay content by weight of the upper 20 inches of the argillic horizon ranges from 18 to about 30 percent.

The C horizon is gray to coarsely mottled. The texture is sandy, loamy, or clayey and is stratified in many pedons.

Meggett series

These poorly drained, slowly permeable, nearly level soils are on broad flood plains and low terraces of the Ochlochonee River. They formed in clayey marine and fluvial sediments. The water table is near the surface in winter and early in the spring. Meggett soils are frequently flooded, primarily in the winter (fig. 10). Slopes range from 0 to 2 percent. Soils of the Meggett series are fine, mixed, thermic Typic Albaqualfs.

Meggett soils are closely associated with Albany, Blanton, Dorovan, Pamlico, Plummer, Rutlege, and Yonges soils. Albany and Blanton soils are better drained than Meggett soils. In addition, they have an A horizon more than 40 inches thick. Dorovan and Pamlico soils are organic, and Meggett soils are mineral. Plummer soils have an A horizon more than 40 inches thick and are in a loamy family. Rutlege soils have an

Figure 10.—This area of Meggett soils, frequently flooded, is near the Ochlockonee River. In areas with adequate surface drainage, potential is high for commercial woodland production.

umbric epipedon and are sandy throughout. Yonges soils do not have an abrupt textural change and are in a fine-loamy family.

Typical pedon of Meggett very fine sandy loam in wooded area about 380 yards west of National Forest boundary, 2.5 miles south of Forest Service Road 305, SE1/4SE1/4 sec. 11, T. 2 S., R. 5 W.

A1—0 to 6 inches; dark gray (10YR 4/1) very fine sandy loam; few fine distinct yellowish brown (10YR 5/4) mottles; weak medium subangular blocky structure; friable; many fine, medium and coarse roots; strongly acid; clear wavy boundary.

A2g—6 to 12 inches; gray (10YR 5/1) loam; common fine distinct strong brown (7.5YR 5/6) and many medium distinct strong brown (7.5YR 5/6) and many medium distinct yellowish brown (10YR 5/6) mottles; strong medium subangular blocky structure; friable; few fine medium and coarse roots; very strongly acid; abrupt wavy boundary.

B21tg—12 to 28 inches; gray (10YR 5/1) clay; many fine distinct red (2.5YR 4/8) mottles; moderate medium subangular blocky structure parting to weak fine angular blocky; firm; few fine and medium roots; very strongly acid; gradual wavy boundary.

B22tg—28 to 35 inches; gray (N 5/0) clay; common medium distinct red (2.5YR 4/8) mottles; moderate medium subangular blocky structure parting to weak fine angular blocky structure; firm; very strongly acid; gradual wavy boundary.

B23tg—35 to 50 inches; gray (N 5/0) clay; many fine distinct brownish yellow (10YR 6/8) and common fine distinct yellowish red (5YR 4/6) mottles; moderate medium subangular blocky structure parting to weak fine angular blocky structure; firm; very strongly acid; gradual wavy boundary.

B31g—50 to 64 inches; gray (10YR 5/1) clay loam; many fine distinct yellowish red (5YR 4/6) and common medium distinct light reddish brown (2.5YR 6/4) mottles; weak medium subangular blocky structure; firm; very strongly acid; gradual wavy boundary.

B32g—64 to 80 inches; light gray (5Y 6/1) clay loam; common medium distinct light olive brown (2.5Y 5/6) and brownish yellow (10YR 6/8) mottles; weak medium subangular blocky structure; firm; slightly acid.

Solum thickness ranges from 40 to 80 inches. Reaction ranges from very strongly acid to slightly acid throughout.

The A horizon ranges from 3 to 13 inches thick. The A1 horizon has color in hue of 10YR, value of 2 to 4, and chroma of 1 or 2. Thickness of this horizon ranges from 3 to 6 inches. The A2 horizon, where present, has hue of 10YR, value of 4 to 6, and chroma of 1 or 2. Texture is loam, sandy loam, or fine sandy loam.

The B2tg horizon has hue of 10YR to 5Y, value of 4 to 7, and chroma of 2 or less that has few to many distinct higher chroma mottles. This horizon is sandy clay or clay. Average clay content of the upper 20 inches is 40 to 60 percent, and silt content is less than 30 percent. The B3g horizon has the same color range as that of the B2tg horizon. The B3g horizon is clay loam or sandy clay loam. In some pedons fine concretions of calcium carbonate are in this horizon.

Some pedons have IIC horizons below a depth of 50 inches. Where present, this horizon has hue of 10YR to 5Y, value of 6 to 8, and chroma of 2 or less. Texture ranges from sand to loamy fine sand.

These soils have a very strongly acid B2t horizon that is confirmed by laboratory data and outside the series range in characteristics. These soils are considered taxadjuncts to the Meggett series.

Norfolk series

The Norfolk series consists of well drained, moderately or very slowly permeable, gently sloping to sloping soils on undulating uplands. They formed in medium to moderately fine textured marine sediments, which in places overlie clayey materials high in montmorillonitic clay. Slopes range from 2 to 8 percent. The water table is perched above the lower part of the subsoil for brief periods during the winter. These soils are fine-loamy, siliceous, thermic Typic Paleudults.

Norfolk soils are closely associated with Orangeburg, Troup, and Wagram soils. Orangeburg soils have red colors in the argillic horizon and do not have a seasonal high water table. Troup soils have an A horizon more than 40 inches thick. Wagram soils have an A horizon 20 to 40 inches thick.

Typical pedon of Norfolk loamy fine sand, 50 feet east of power line and 2,800 feet south of Maclay Road, SW1/4SE1/4 sec. 6, T. 1 N., R. 1 E.

Ap—0 to 4 inches; grayish brown (10YR 5/2) loamy fine sand; weak fine granular structure; very friable; many fine and medium roots; strongly acid; clear smooth boundary.

A2—4 to 8 inches; yellowish brown (10YR 5/4) loamy fine sand; weak medium granular structure; very friable; many fine and medium roots; strongly acid; clear smooth boundary.

B21t—8 to 15 inches; brownish yellow (10YR 6/6) fine sandy loam; weak medium subangular blocky structure; friable; many fine and few medium roots; strongly acid; clear smooth boundary.

B22t—15 to 31 inches; yellowish brown (10YR 5/8) sandy clay loam; weak medium subangular blocky structure; friable; thin clay coatings on faces of peds; few fine roots; strongly acid; gradual wavy boundary.

B23t—31 to 44 inches; brownish yellow (10YR 6/8) sandy clay loam; weak medium subangular blocky structure; friable; thin clay coatings on faces of peds; few fine roots; strongly acid; gradual wavy boundary.

B24t—44 to 58 inches; yellowish brown (10YR 5/6) sandy clay loam; weak medium subangular blocky structure; friable; clay coatings on faces of peds; very strongly acid; abrupt wavy boundary.

B3—58 to 68 inches; strong brown (7.5YR 5/8) and reddish yellow (7.5YR 7/8) sandy clay; weak medium subangular blocky structure; friable; very strongly acid; gradual wavy boundary.

C—68 to 80 inches; mottled brownish yellow (10YR 6/6), strong brown (7.5YR 5/6), and gray (10YR 5/1) sandy clay; massive; friable; very strongly acid.

Typical pedon of Norfolk loamy sand, clayey substratum, 5 to 8 percent slopes, in permanent pasture 100 feet west of Old Bainbridge Road and 300 feet north of intersection with Perkin Road, SE1/4SE1/4 sec. 5, T. 1 N., R. 1 W.

Ap—0 to 7 inches; dark brown (10YR 3/3) loamy sand; weak fine granular structure; very friable; many fine roots; slightly acid; clear smooth boundary.

B21t—7 to 14 inches; dark yellowish brown (10YR 4/4) fine sandy loam; moderate medium subangular blocky structure; friable; many fine roots; clay bridging between sand grains; strongly acid; clear smooth boundary.

B22t—14 to 29 inches; yellowish brown (10YR 5/6) sandy clay loam; moderate medium subangular blocky structure; friable; clay bridging between sand grains; strongly acid; gradual wavy boundary.

B23t—29 to 51 inches; brownish yellow (10YR 6/8) sandy clay loam; moderate medium subangular blocky structure; friable; bridging of clay between sand grains; strongly acid; gradual wavy boundary.

B24t—51 to 59 inches; brownish yellow (10YR 6/8) sandy clay loam; common medium distinct strong brown (7.5YR 5/8) mottles; moderate medium angular blocky structure; friable; thin clay films on ped surfaces; strongly acid; gradual wavy boundary.

B25t—59 to 64 inches; mottled brownish yellow (10YR 6/6), strong brown (7.5YR 5/8) and light gray (10YR 7/1) sandy clay loam; moderate fine angular blocky structure; friable; common coarse iron nodules; strongly acid; abrupt wavy boundary.

IIC—64 to 80 inches; light gray (10YR 7/1) clay; common medium distinct brownish yellow (10YR 6/8) mottles; moderate fine angular blocky structure grading to massive with depth; firm, plastic; extremely acid.

Solum thickness ranges from 60 to more than 70 inches. Unless limed, soil reaction is strongly acid to very strongly acid in the A and Bt horizons. Reaction is extremely acid to strongly acid in the IIC horizon where present.

The A1 or Ap horizon has hue of 10YR or 2.5Y, value of 2 to 5, and chroma of 1 to 4. Texture is loamy fine sand or loamy sand. Thickness ranges from 3 to 10 inches.

The B2t horizon color is in hue of 10YR or 7.5YR, value of 4 to 6, and chroma of 4 to 8. Few to common mottles of red, brown, yellow, and gray are in the lower part of the Bt horizon below a depth of 50 inches. Chroma 2 mottles associated with wetness are below a depth of 50 inches. Texture ranges from fine sandy loam to clay loam. Average clay content in the upper 20 inches of the B2t horizon is 18 to 30 percent.

The B3 horizon, where present, is mottled in hue of 7.5YR, 10YR, or 10R, value of 4 to 7, and chroma of 6 or 8. Texture is sandy clay loam or sandy clay.

The C horizon, where present, extends to depths greater than 80 inches. It is mottled in hue of 7.5YR or 10YR, value of 5 or 6, and chroma of 1 or 6. The texture

is variable but most commonly sandy clay loam or sandy clay.

The IIC horizon, where present, has hue of 10YR or 7.5YR, value of 6 to 8, and chroma of 2 or less, or is mottled in these colors. Texture is dominantly clay but ranges to sandy clay and is high in montmorillonitic clay. Depth to the IIC horizon ranges from 50 to 70 inches.

Ocilla series

The Ocilla series consists of somewhat poorly drained, moderately permeable, nearly level soils on moderately low positions in the uplands. They formed in sandy and loamy marine sediments. Slopes range from 0 to 2 percent. The water table is at a depth of 15 to 30 inches for 2 to 6 months. These soils are loamy, siliceous, thermic Aquic Arenic Paleudults.

Ocilla soils are geographically closely associated with Albany, Lynchburg, Norfolk, Orangeburg, Plummer, and Pelham soils. Norfolk and Orangeburg soils are better drained, have an A horizon less than 20 inches thick, and are on higher positions than Ocilla soils. Albany soils are on similar positions but have an A horizon more than 40 inches thick. Plummer and Pelham soils are on lower positions and are poorly drained. In addition, Plummer soils have an A horizon more than 40 inches thick.

Typical pedon of Ocilla fine sand in a wooded area 300 feet north and 50 feet east of Maddox and Flat Roads intersection, SW1/4NE1/4 sec. 7, T. 1 N., R. 1 W.

A1—0 to 3 inches; dark gray (10YR 4/1) rubbed fine sand; weak fine granular structure; very friable; many fine and medium roots; unrubbed color has salt-and-pepper appearance; extremely acid; abrupt wavy boundary.

A21—3 to 6 inches; pale olive (5Y 6/3) fine sand; few fine distinct gray (5Y 5/1) mottles; weak fine granular structure; very friable; few medium and coarse roots; very strongly acid; gradual wavy boundary.

A22—6 to 22 inches; light yellowish brown (2.5YR 6/4) loamy fine sand; few fine distinct gray (5Y 5/1) and common fine distinct brownish yellow (10YR 6/6) mottles; weak fine granular structure; very friable; few medium roots; very strongly acid; gradual wavy boundary.

B1—22 to 29 inches; brownish yellow (10YR 6/6) loamy fine sand; common medium distinct gray (N 5/0) and olive yellow (2.5Y 6/8) mottles; moderate fine granular structure; very friable; few medium roots; very strongly acid; clear wavy boundary.

B21t—29 to 39 inches; yellowish brown (10YR 5/6) sandy clay loam; common coarse distinct light olive gray (5Y 6/2) mottles; weak medium subangular blocky structure; friable; sand grains coated and bridged with clay; strongly acid; clear wavy boundary.

B22tg—39 to 56 inches; gray (10YR 5/1) sandy clay loam; many fine and medium distinct light yellowish brown (10YR 6/4) and many fine and medium prominent brownish yellow (10YR 6/8) mottles; weak medium subangular blocky structure; friable; sand grains bridged and coated with clay; strongly acid; gradual wavy boundary.

B23tg—56 to 80 inches; mottled gray (10YR 5/1) and dark yellowish brown (10YR 4/4) sandy clay loam; weak coarse subangular blocky structure; friable; very strongly acid.

Soil reaction is extremely acid to very strongly acid in the A horizon and strongly acid or very strongly acid in the Bt horizon. Solum thickness is more than 72 inches.

Thickness of the A horizon ranges from 20 to 40 inches. The A1 horizon has hue of 10YR or N, value of 3 or 4, and chroma of 0 or 1. Thickness ranges from 3 to 6 inches. The A2 horizon has hue of 10YR, value of 6 and chroma of 3 or 4; hue of 2.5Y with value of 5 and chroma of 2, with value of 6 and chroma of 2 or 4, or with value of 7 or 8 and chroma of 4; or hue of 5Y, value of 6, and chroma of 3. Mottles in brown, yellow, gray, and olive range from few to many. Texture of the A2 horizon is fine sand or loamy fine sand.

The B1 horizon has hue of 10YR, value of 6, and chroma of 4 to 8; or hue of 2.5YR, with value of 5 and chroma of 4 or 6, with value of 6 and chroma of 4, or with value of 7 and chroma of 6. Mottles of gray, brown, or yellow range from common to many. Thickness ranges from 6 to 12 inches.

The B21t horizon has hue of 10YR, value of 5 to 7, and chroma of 6 or 8; hue of 2.5Y, value of 6, and chroma of 4; or hue of 7.5YR, value of 5, and chroma of 6 or 8 that has few to many mottles with chroma of 2. The B22tg and B23tg horizons range from mottled shades of yellow, brown, red, and gray, to a matrix in hue of 10YR, value of 5 to 7, and chroma of 1. The B2t horizon is fine sandy loam or sandy clay loam. The clay content of the upper 20 inches of B2t horizon ranges from about 18 to 35 percent.

Orangeburg series

The Orangeburg series consists of well drained, moderately permeable, gently sloping to strongly sloping soils on rolling uplands and hillsides. They formed in loamy and clayey deposits. Slopes range from 2 to 12 percent. The water table is below a depth of 72 inches. These soils are fine-loamy, siliceous, thermic Typic Paleudults.

Orangeburg soils are closely associated with Blanton, Lucy, Norfolk, and Troup soils. Blanton soils have an A horizon more than 40 inches thick and are not as well drained as Orangeburg soils. Norfolk soils have a yellowish Bt horizon. Lucy and Troup soils have an A horizon more than 40 inches thick.

Typical profile of Orangeburg fine sandy loam in wooded area 3,000 feet northwest of Woods Road at

rear of Maclay Gardens where powerline crosses Maclay Road, NW1/4SE1/4 sec. 31, T. 2 N., R. 1 E.

A1—0 to 5 inches; brown (7.5YR 4/2) fine sandy loam; weak fine granular structure; friable; many fine and medium roots; strongly acid; clear smooth boundary.
B1t—5 to 10 inches; yellowish red (5YR 4/8) fine sandy loam; weak fine subangular blocky structure; friable; few dark brown (7.5YR 3/2) stains; many fine and medium roots; medium acid; clear smooth boundary.
B21t—10 to 16 inches; yellowish red (5YR 5/6) sandy clay loam; moderate medium subangular blocky structure; friable; many medium and few fine roots; few clay films on faces of peds; strongly acid; gradual smooth boundary.
B22t—16 to 41 inches; red (2.5YR 5/8) sandy clay loam; moderate medium subangular blocky structure; friable; few medium roots; few clay films on faces of peds; strongly acid; gradual smooth boundary.
B23t—41 to 80 inches; red (2.5YR 5/6) sandy clay loam; moderate medium subangular blocky structure; friable; few medium roots; patchy clay films on faces of peds; strongly acid.

Solum thickness is more than 60 inches. Unless the soil is limed, reaction is strongly acid or very strongly acid.

The A horizon is from 4 to 20 inches thick. The Ap or A1 horizon ranges from 4 to 10 inches thick. It has hue of 7.5YR or 10YR, value of 3 or 4, and chroma of 2 or 4. Some pedons have an A2 horizon. It has hue of 10YR with value of 5 and chroma of 4 or 6 or with value of 5 and chroma of 3 or 4.

The B1t horizon has hue of 5YR with value of 4 and chroma of 8 or with value of 5 and chroma of 5 or 6; hue of 7.5YR with value of 5 and chroma of 4 to 8 or with value of 6 and chroma of 6 or 8; or hue of 10YR, value of 5, and chroma of 4 to 8. Thickness ranges to 14 inches.

The B2t horizon is sandy clay loam but ranges to fine sandy loam. Color is similar to the B1t horizon. Average clay content of the upper 20 inches of the Bt horizon ranges from 20 to 35 percent.

The C horizon, where present, extends to 80 inches or more. It has variable shades of yellow, brown, and red. Texture is variable, ranging from sandy loam to sandy clay.

Ortega series

The Ortega series consists of moderately well drained, rapidly permeable, nearly level to gently sloping soils on ridges on the uplands. They formed in thick sandy marine or eolian deposits. Slopes range from 0 to 5 percent. The water table is from 60 to 72 inches below the surface generally and is from 40 to 60 inches occasionally during heavy rainfall. These soils are thermic, uncoated Typic Quartzipsamments.

Ortega soils are closely associated with Albany, Kershaw, Plummer, and Rutlege soils. Albany soils do not have a Bt horizon and are not as well drained as Ortega soils. Kershaw soils are better drained. Plummer and Rutlege soils are not as well drained. Ortega soils do not have the argillic horizon of Plummer soils and the umbric epipedon of Rutlege soils.

Typical pedon of Ortega sand in a wooded area 1 1/2 miles south of intersection of Florida Highway 369 and Capitol Circle, 1/2 mile east of Florida Highway 369 on Woods Road and 50 feet south of Woods Road SW1/4NW1/4 sec. 36, T. 1 S., R. 1 W.

A1—0 to 4 inches; gray (10YR 5/1) sand; single grained; loose; many fine roots; strongly acid; gradual wavy boundary.
C1—4 to 10 inches; light brownish gray (10YR 6/2) sand; single grained; loose; many fine roots; strongly acid; gradual irregular boundary.
C2—10 to 28 inches; very pale brown (10YR 7/4) sand; single grained; loose; common fine roots; strongly acid; gradual wavy boundary.
C3—28 to 44 inches; yellow (10YR 7/6) sand; single grained; loose; few fine roots; strongly acid; gradual wavy boundary.
C4—44 to 72 inches; yellow (10YR 7/6) fine sand; single grained; loose; few faint brownish yellow (10YR 6/6) mottles; medium acid; gradual irregular boundary.
C5—72 to 80 inches; white (10YR 8/1) fine sand; single grained; loose; common medium distinct light yellowish brown (10YR 6/4) mottles; slightly acid.

Soil reaction is very strongly acid to slightly acid.

The Ap or A1 horizon ranges from 3 to 4 inches. It has hue of 10YR, value of 4 or 5, and chroma of 1 or 2.

The C1 and C2 horizons have hue of 10YR, value of 5 through 7 and chroma of 4 to 6. Few to common, fine to coarse mottles or pockets of white or light gray uncoated sand grains are in these horizons in some pedons but are not indicative of wetness. Silt plus clay in the 10- to 40-inch control section is less than 5 percent. The C3 horizon has hue of 10YR, value of 5 to 7, and chroma of 6 to 8 and few to common yellowish or reddish mottles below 40 inches.

The C4 horizon has hue of 10YR, value of 7 or 8, and chroma of 1 or 2, and has common medium distinct yellow, red or brown mottles. Depth to the C4 horizon is more than 60 inches.

Pamlico series

The Pamlico series consists of very poorly drained, moderately permeable, nearly level soils in drainageways and depressional areas. They formed in well decomposed organic matter overlying sandy mineral sediments. Slopes are less than 1 percent. The water table is above the surface for 5 to 8 months and within a depth of 10 inches other months in most years. These

soils are flooded frequently. These soils are sandy or sandy-skeletal, siliceous, dysic, thermic Terric Medisaprists.

Pamlico soils are closely associated with Dorovan, Pelham, Plummer, and Rutlege soils. All these soils are mineral in origin except Dorovan soils. Dorovan soils have thicker layers of organic material.

Typical pedon of Pamlico mucky peat from a swamp about 50 feet west of the Capitol Circle Highway, NW1/4 sec. 32, T. 1 N., R. 1 W.

0 to 4 inches; black (10YR 2/1) mucky peat consisting of partly decomposed moss, leaves, roots, and twigs; 35 percent fiber content after rubbing; friable; slightly sticky; very strongly acid; gradual wavy boundary.

4 to 13 inches; black (10YR 2/1) rubbed muck; very dark brown (10YR 2/2) pressed; about 25 percent fiber, less than 5 percent rubbed; fiber remaining after rubbing is partly decomposed wood 1 to 2 millimeters; massive; friable; common to few fine and medium roots; very strongly acid; gradual wavy boundary.

Oa2—13 to 32 inches; very dark brown (10YR 2/2) rubbed muck; very dark gray (10YR 3/1) pressed; fiber remaining after rubbing is partly decomposed wood 1 to 2 millimeters; massive; friable; few fine roots; very strongly acid; abrupt wavy boundary.

IIC1g—32 to 60 inches; very dark gray (10YR 3/1) sand; single grained; loose; very strongly acid; gradual wavy boundary.

IIC2g—60 to 80 inches; dark gray (10YR 4/1) sand; single grained; loose; very strongly acid.

Combined thickness of the organic horizons ranges from 16 to 40 inches. Reaction ranges from strongly acid to extremely acid throughout.

The Oe horizon has hue of 10YR, value of 2 or 3, and chroma of 1; or hue of N, value of 2 or 3. Fiber content ranges from 35 to 50 percent after rubbing. Thickness ranges from 0 to 4 inches.

The Oa horizon has hue of 10YR with value of 2 and chroma of 1 or 2 or with value of 3 and chroma of 1 to 3; hue of N with value of 2 or 3; or hue of 7.5YR, value of 2 or 3, and chroma of 2. Fiber content after rubbing is less than 10 percent. The IICg horizon is sand or fine sand and has hue of 10YR, value of 2 to 5, and chroma of 1 or 2.

Pelham series

The Pelham series consists of poorly drained, moderately permeable, nearly level soils in shallow depressional areas and on broad flats on the uplands and along some drainageways. They formed in loamy marine sediments. Slopes range from 0 to 2 percent. The water table is within 15 inches of the surface for 3 to 6 months in most years. These soils are loamy, siliceous, thermic Arenic Paleaquults.

Pelham soils are associated with Albany, Lynchburg, Ocilla, and Plummer soils. Albany, Lynchburg, and Ocilla soils are better drained and are on higher positions. In addition, Albany soils have an A horizon more than 40 inches thick and Lynchburg soils have an A horizon less than 20 inches thick. Plummer soils are on a similar position but have an A horizon more than 40 inches thick.

Typical pedon of Pelham fine sand in a cleared area about 0.4 mile west of Bradfordville and 0.5 mile south of Centerville Road, NE1/4SW1/4 sec. 11, T. 2 N., R. 2 E.

A1—0 to 5 inches; very dark gray (10YR 3/1) fine sand; weak fine granular structure; very friable; many fine and medium roots; very strongly acid; clear wavy boundary.

A21—5 to 12 inches; dark gray (10YR 4/1) fine sand; few medium distinct very dark gray (10YR 3/1) mottles; weak fine granular structure; very friable; common fine roots; very strongly acid; clear wavy boundary.

A22—12 to 21 inches; light brownish gray (10YR 6/2) fine sand; common medium and coarse distinct light gray (5Y 7/1) mottles; weak fine granular structure; very friable; few fine roots; strongly acid; clear wavy boundary.

A23—21 to 26 inches; light gray (5Y 7/1) fine sand; single grained; loose; few medium root channels that have red (2.5YR 4/8) interior coatings; strongly acid; abrupt wavy boundary.

B21tg—26 to 32 inches; gray (5Y 6/1) sandy clay loam; many fine distinct yellowish brown (10YR 5/8) mottles; moderate fine and medium subangular blocky structure; sand grains coated and bridged with clay; very strongly acid; clear wavy boundary.

B22tg—32 to 80 inches; light gray (2.5YR 7/2) sandy clay loam; common medium distinct yellow (5Y 7/6), many fine medium and coarse distinct yellowish brown (10YR 5/8), and many fine medium and coarse prominent red (2.5YR 4/8) mottles; moderate medium subangular blocky structure; friable; thin clay coatings on faces of peds; very strongly acid.

Unless limed, soil reaction is strongly acid or very strongly acid.

Thickness of the A horizon is 20 to 40 inches. The A1 horizon has hue of 10YR, value of 2 or 3, and chroma of 1 or 2. It is 4 to 8 inches thick. The A2 horizon has hue of 10YR or 5Y, value of 4 to 7, and chroma of 1 or 2.

The B2tg horizon has hue of 10YR to 5Y, value of 5 to 7, and chroma of 0 to 2 that may have mottles in shades of yellow, brown, or red. Texture is dominantly sandy loam, fine sandy loam, or sandy clay loam, but ranges to sandy clay in a few places.

Plummer series

The Plummer series consists of poorly drained, moderately permeable, nearly level soils on broad low

areas, in poorly defined drainageways, and in depressional areas. They formed in marine or fluvial sediments. Slopes range from 0 to 2 percent. The water table is at the surface or within a depth of 15 inches for 3 to 6 months in most years. Depressional areas are ponded for 6 months or more. These soils are loamy, siliceous, thermic Grossarenic Paleaquults.

Plummer soils are closely associated with Leon, Pelham, and Rutlege soils. Leon soils are on slightly higher positions, have a spodic horizon, and are sandy to a depth of 80 inches or more. Pelham soils have an argillic horizon between depths of 20 and 40 inches. Rutlege soils have an umbric epipedon and are sandy throughout.

Typical pedon of Plummer fine sand in an idle area along Lake Jackson, 50 feet south of Longview Drive, and 300 feet from Lake Jackson, SE1/4NE1/4 sec. 4, T. 1 N., R. 1 W.

A11—0 to 6 inches; very dark grayish brown (10YR 3/2) fine sand; weak fine granular structure; very friable; many fine and medium roots; strongly acid; clear wavy boundary.

A12—6 to 17 inches; dark grayish brown (10YR 4/2) fine sand; single grained; loose; strongly acid; clear wavy boundary.

A21g—17 to 28 inches; gray (N 5/0) fine sand; single grained; loose; strongly acid; gradual wavy boundary.

A22g—28 to 36 inches; gray (5Y 6/1) fine sand; few fine prominent strong brown (7.5YR 5/8) mottles; single grained; loose; strongly acid; gradual wavy boundary.

A23g—36 to 61 inches; light gray (10YR 7/1) fine sand; single grained; loose; few coarse slightly cemented nodules; medium acid; gradual wavy boundary.

B2tg—61 to 80 inches; light gray (10YR 7/1) fine sandy loam; common fine prominent yellowish red (5YR 5/8) mottles; weak medium subangular blocky structure; friable; sand grains bridged with clay; strongly acid.

Solum thickness is more than 72 inches. Reaction ranges from very strongly acid to medium acid in the A horizons, and very strongly acid to strongly acid in the Btg horizon.

Thickness of the A horizon ranges from 40 to 80 inches. The A1 horizon has hue of 10YR or 5Y, value of 3 or 4, and chroma of 0 to 2. This horizon ranges from 4 to 17 inches thick. Texture is fine sand or mucky fine sand. The A2g horizon has hue of 10YR, value of 6 or 7, and chroma of 1; hue of 5Y, value of 5 to 8, and chroma of 1; hue of 2.5Y, value of 8, and chroma of 2; or hue of N with value of 5 to 8. In some pedons, there are few to common mottles in colors of brown, yellow, or gray.

The B2tg horizon has hue of 10YR or 5Y, value of 5 through 7, and chroma of 0 to 2 that may have mottles of red, yellow, or brown. This horizon is sandy loam, fine sandy loam, or sandy clay loam.

Rutlege series

The Rutlege series consists of very poorly drained, rapidly permeable, nearly level soils in shallow depressional areas and narrow natural drainageways. They formed in deposits of sandy marine sediments. Slopes range from 0 to 2 percent. The water table is at or near the surface most of the year. Many areas are flooded frequently for brief periods. These soils are sandy, siliceous, thermic Typic Humaquepts.

Rutlege soils are closely associated with the Plummer, Chipley, Ortega, Blanton, and Kershaw soils. Plummer soils do not have an umbric epipedon but do have an argillic horizon. Chipley soils are on higher positions and are better drained than Rutlege soils. Ortega soils are on much higher positions, are better drained, and do not have an umbric epipedon. Blanton soils are on a higher position, have an argillic horizon between depths of 40 and 80 inches, and do not have an umbric epipedon. Kershaw soils are excessively drained, are on high positions, and do not have an umbric epipedon.

Typical pedon of Rutlege loamy fine sand in wooded area 1,300 feet south of Jefferson Road, 2 miles northwest of Lloyd, SE1/4NW1/4 sec. 17, T. 1 N., R. 3 E.

A11—0 to 5 inches; very dark gray (10YR 3/1) loamy fine sand; weak fine granular structure; very friable; many fine roots; extremely acid; gradual wavy boundary.

A12—5 to 23 inches; black (10YR 2/1) loamy sand; weak fine granular structure; very friable; many fine roots; very strongly acid; clear wavy boundary.

C1—23 to 32 inches; grayish brown (10YR 5/2) sand; common medium distinct very dark gray (10YR 3/1) mottles; single grained; loose; strongly acid; gradual wavy boundary.

C2—32 to 57 inches; light brownish gray (10YR 6/2) fine sand; few fine distinct brownish yellow (10YR 6/8) mottles; single grained; loose; common fine roots; strongly acid; gradual wavy boundary.

C3—57 to 62 inches; light gray (10YR 7/1) sand; few medium distinct yellowish brown (10YR 5/8) mottles; single grained; loose; strongly acid; gradual wavy boundary.

C4—62 to 82 inches; light gray (10YR 7/1) fine sand; few medium distinct reddish brown (5YR 5/3) mottles; single grained; loose; medium acid.

Reaction ranges from strongly acid to extremely acid in the A horizon and from extremely acid to medium acid in the C horizon.

The A horizon has hue of 10YR, 2.5Y, or N, value of 2 or 3, and chroma of 0 to 2. Thickness ranges from 15 to 24 inches. The horizon is loamy sand or loamy fine sand.

The Cg horizon has hue of 10YR through 5Y, value of 5 through 7, and chroma of 0 or 1 and may not have mottles. If mottled, the value is 4 through 7 and chroma is 2 or less. The horizon is sand or fine sand.

Sapelo series

The Sapelo series consists of poorly drained, moderately permeable, nearly level soils in flatwoods. They formed in thick deposits of sandy and loamy materials. Slopes range from 0 to 2 percent. A water table is 15 to 30 inches below the surface for 2 to 4 months. These soils are sandy, siliceous, thermic Ultic Haplaquods.

Sapelo soils are closely associated with Chipley, Dorovan, Kershaw, Leon, Ortega, Pamlico, and Rutlege soils. The associated soils do not have a spodic horizon except Leon. Leon soils do not have an argillic horizon. Chipley, Kershaw, and Ortega soils are on higher positions and are better drained than Sapelo soils. Dorovan and Pamlico are organic soils and are more poorly drained. Rutlege soils are more poorly drained and have an umbric epipedon.

Typical pedon of Sapelo fine sand in a wooded area 0.75 mile north of Capitola on Florida Highway 364, about 30 feet west of highway, SE1/4NE1/4 sec. 26, T. 1 N., R. 2 E.

Ap—0 to 6 inches; very dark gray (10YR 3/1) rubbed fine sand; moderate fine and medium granular structure; very friable; many fine and coarse roots; very strongly acid; clear smooth boundary.

A2—6 to 14 inches; light gray (10YR 7/1) fine sand; single grained; loose; many fine and medium roots; strongly acid; abrupt wavy boundary.

B21h—14 to 16 inches; dark reddish brown (5YR 2/2) loamy fine sand; weak fine granular structure; friable; slightly brittle; few fine and medium roots; sand grains coated with colloidal organic matter; very strongly acid; clear wavy boundary.

B22h—16 to 22 inches; dark brown (7.5YR 3/2) loamy fine sand; weak fine granular structure; friable; few brittle fragments; few fine and medium roots; sand grains coated with colloidal organic matter; very strongly acid; gradual wavy boundary.

B3—22 to 26 inches; brown (10YR 4/3) fine sand; few medium distinct brownish yellow (10YR 6/8) and very pale brown (10YR 7/3) mottles; weak fine granular structure; very friable; many uncoated sand grains; strongly acid; abrupt wavy boundary.

A'21—26 to 33 inches; very pale brown (10YR 7/4) fine sand; common medium distinct olive yellow (2.5Y 6/6) and light brownish gray (2.5Y 6/2) mottles; single grained; loose; strongly acid; clear wavy boundary.

A'22—33 to 43 inches; light gray (2.5YR 7/2) fine sand; common medium distinct olive yellow (2.5Y 6/8) mottles; single grained; loose; strongly acid; clear wavy boundary.

B'2tg—43 to 80 inches; gray (5YR 5/1) fine sandy loam; many coarse prominent strong brown (7.5YR 5/8) mottles; weak medium and coarse subangular blocky structure; friable; sand grains coated and bridged with clay; very strongly acid.

Solum thickness ranges from 45 to 80 inches or more. Reaction is very strongly acid or strongly acid. Depth to the Bh horizon ranges from 12 to 30 inches.

The A1 or Ap horizon has hue of 10YR or N, value of 1 through 4, and chroma of 2 or less. Thickness ranges from 3 to 7 inches. The A2 horizon has hue of 2.5Y, 10YR, or N, value of 5 through 8, and chroma of 2 or less. Thickness of this horizon ranges from 8 to 20 inches.

The Bh horizon has hue of 5YR, 7.5YR or 10YR, value of 2 or 3, and chroma of 1 to 3. This horizon is fine sand or loamy fine sand and ranges from 6 to 20 inches in thickness. The B3 horizon is not present in all pedons. Where present, hue is 10YR, value of 4 to 6, and chroma of 3. Thickness ranges from 2 to 4 inches.

The A'2 horizon has hue of 10YR with value of 5 through 7 and chroma of 2, or with value of 7 and chroma of 3 or 4; or hue of 2.5Y, value of 6 through 8, and chroma of 2 or 4. This horizon is fine sand or sand and ranges from 15 to 30 inches in thickness. Mottles range from few to many.

The B'2tg horizon has hue of 10YR, value of 7 to 8, and chroma of 1 or 2; or hue of 5Y with value of 7 or 8 and chroma of 1 or 2, with value of 5 or 6 and chroma of 1. This horizon is sandy clay loam or fine sandy loam.

Surrency series

The Surrency series consists of very poorly drained, moderately permeable, nearly level soils in drainageways and depressional areas. They formed from marine or fluvial deposits of sandy and loamy materials. Slopes are less than 2 percent. The water table is at the surface for long periods and flooding is common. These soils are loamy, siliceous, thermic Arenic Umbric Paleaquults.

Surrency soils are closely associated with Dorovan, Pamlico, and Rutlege soils. Dorovan and Pamlico soils are organic and Rutlege soils do not have an argillic horizon.

Typical pedon of Surrency loamy sand, 100 feet north of Forest Service Road 301 and 0.1 mile east of Forest Service Road 305N, sec. 14, T. 1 S., R. 3 W.

01—3 inches to 0; roots and partly decomposed organic matter.

A1—0 to 16 inches; very dark gray (10YR 3/1) loamy sand; few medium distinct gray (10YR 6/1) streaks; weak fine granular structure; very friable; many fine to medium roots; extremely acid; gradual wavy boundary.

A2—16 to 36 inches; grayish brown (10YR 5/2) loamy sand; few medium faint gray (10YR 6/1) streaks; weak fine granular structure; very friable; few fine and medium roots; very strongly acid; gradual wavy boundary.

B21t—36 to 54 inches; light gray (10YR 7/1) sandy loam; common medium distinct mottles of yellowish brown (10YR 5/6); weak fine subangular blocky

structure; friable; very strongly acid; gradual wavy boundary.

B22t—54 to 65 inches; light brownish gray (10YR 6/2) sandy clay loam that has common medium distinct mottles of yellowish brown (10YR 5/6) and pale brown (10YR 7/4); weak medium subangular blocky structure; firm; very strongly acid.

Solum thickness is 70 or more inches. Reaction is extremely acid or very strongly acid.

The A1 horizon has hue of 10YR, value of 3 or less, and chroma of 1 or less and streaks that have hue of 10YR, value of 5 or 6, and chroma of 1.

The A2 horizon has hue of 10YR, value of 4 through 7, and chroma of 2 that has common mottles of chroma 6 through 8 and streaks that have hue of 10YR, value of 5 or 6, and chroma of 1. This horizon is loamy sand or sand.

The B2t horizon has hue of 10YR or 5Y, value of 5 to 7, and chroma of 2 or less; or hue of 2.5Y, value of 5 or 6, and chroma of 2 that has common to many mottles that have hue of 10YR, 2.5YR, or 7.5YR, value of 4 to 6, and chroma of 1 through 8. The Bt horizon is sandy loam or sandy clay loam.

Talquin series

The Talquin series consists of poorly drained, moderately to moderately rapidly permeable, nearly level soils on broad flatwood areas. They formed in thick beds of sandy marine sediments. Slopes range from 0 to 2 percent. The water table is within 10 inches of the surface for 1 to 3 months during high rainfall and within depths of 20 to 40 inches for 9 months or more during most years. These soils are sandy, siliceous, thermic Entic Haplaquods.

Talquin soils are closely associated with Leon, Rutlege, and Sapelo soils. Sapelo soils have an argillic horizon beneath the spodic horizon. Rutlege soils have an umbric epipedon but do not have a spodic horizon. Leon soils have better developed spodic horizons.

Typical pedon of Talquin fine sand in cleared area 1.5 miles east of Natural Bridge, 30 feet north of Natural Bridge Road, SE1/4SE1/4 sec. 21, T. 2 S., R. 2 E.

Ap—0 to 10 inches; dark gray (10YR 4/1) rubbed fine sand; weak medium granular structure; very friable; many fine medium and large roots; many uncoated sand grains give a salt-and-pepper appearance; extremely acid; clear smooth boundary.

A2—10 to 25 inches; light gray (10YR 7/1) fine sand; common medium faint streaks of gray; single grained; loose; few fine medium and large roots; very strongly acid; abrupt wavy boundary.

B21h—25 to 27 inches; very dark gray (10YR 3/1) fine sand; weak medium granular structure; very friable, noncemented; common uncoated sand grains; very strongly acid; clear smooth boundary.

B22h—27 to 37 inches; brown (7.5YR 4/4) fine sand; common medium faint dark brown (7.5YR 3/2) stains along root channels; weak medium granular structure; very friable, noncemented; sand grains thinly coated with colloidal organic matter; very strongly acid; gradual wavy boundary.

C—37 to 80 inches; light yellowish brown (10YR 6/4) fine sand; single grained; loose; very strongly acid.

Reaction ranges from extremely acid to strongly acid.

Total thickness of the A horizon is less than 30 inches. The A1 or Ap horizon has rubbed hue of 10YR or N, value of 2 to 4, and chroma of 0 to 2. Unrubbed, this horizon is a mixture of white uncoated sand grains and black organic matter. When dry, soil in this horizon has a salt-and-pepper appearance. The A2 horizon has hue of 10YR or N, value of 5 to 8, and chroma of 0 to 2. In some pedons this horizon has mottles of stronger chroma or vertical streaks of black, very dark gray, or gray.

The B21h horizon has hue of 10YR, value of 3 or 4, and chroma of 1; or hue of N and value of 3. This horizon has many uncoated sand grains and does not meet the requirements of a spodic horizon. The B22h horizon has hue of 10YR with value of 2 and chroma of 1, with value of 3 and chroma of 2 or 3, or with value of 4 and chroma of 2 to 4; hue of 7.5YR with value of 3 and chroma of 2, or with value of 4 and chroma of 2 or 4; or hue of 5YR, value of 3 or 4, and chroma of 3 or 4. Sand grains are thinly to moderately coated with colloidal organic matter. B22h horizons meet the requirements of spodic horizon but do not have a weighted average of 0.6 percent or more organic carbon in the matrix of the upper 12 inches or 2.3 percent or more in the upper 2 centimeters.

The C horizon has hue of 10YR, 2.5Y, or N, value of 5 to 7, and chroma of 0 to 4 that may or may not have mottles of gray, brown, or yellow.

Troup series

The Troup series consists of well drained, moderately permeable, nearly level to gently sloping soils on high uplands. They formed in unconsolidated marine or fluvial deposits of sands and sandy clay loams. Slopes range from 0 to 5 percent. The water table is below a depth of 80 inches or more. These soils are loamy, siliceous, thermic Grossarenic Paleudults.

Troup soils are closely associated with Blanton, Lucy, Norfolk, and Orangeburg soils. Troup soils are better drained than Blanton soils. Norfolk and Orangeburg soils have an A horizon less than 20 inches thick, and Lucy soils have an A horizon 20 to 40 inches thick.

Typical pedon of Troup fine sand in old field 500 feet south of U.S. Highway 27 on Old Bainbridge Road and 100 feet west of pavement, SE1/4NE1/4 sec. 31, T. 2 N., R. 1 W.

Ap—0 to 8 inches; dark grayish brown (10YR 4/2) fine sand; weak fine granular structure; very friable; many fine and medium roots; medium acid; gradual wavy boundary.

A21—8 to 19 inches; yellowish brown (10YR 5/4) fine sand; single grained; loose; many fine and medium roots; slightly acid; gradual wavy boundary.

A22—19 to 26 inches; yellowish brown (10YR 5/6) fine sand; single grained; loose; common medium pockets of light gray (10YR 7/1) uncoated sand grains; few thin (2 to 4 millimeter) discontinuous strong brown (7.5YR 5/6) loamy sand lamellae; many medium and fine roots; slightly acid; gradual wavy boundary.

A23—26 to 44 inches; reddish yellow (7.5YR 6/6) fine sand; single grained; very friable; many medium and few fine roots; slightly acid; gradual wavy boundary.

B21t—44 to 54 inches; strong brown (7.5YR 5/8) fine sandy loam; weak medium subangular blocky structure; friable; sand grains thinly coated and bridged with clay; medium acid; gradual smooth boundary.

B22t—54 to 73 inches; yellowish red (5YR 5/8) sandy clay loam; moderate medium subangular blocky structure; friable; sand grains coated and bridged with clay; strongly acid; gradual smooth boundary.

B23t—73 to 80 inches; red (2.5YR 5/8) sandy clay loam; moderate medium subangular blocky structure; friable; sand grains coated and bridged with clay; strongly acid.

Unless limed, reaction is strongly acid or very strongly acid throughout.

The A horizon is from 40 to 80 inches or more in thickness. The A1 or Ap horizon ranges from 2 to 8 inches thick. It has hue of 10YR, value of 3 or 4, and chroma of 2. The A2 horizon has hue of 10YR, value of 5 or 6, and chroma of 3 to 6; hue of 7.5YR, value of 5 or 6, and chroma of 6 or 8; or hue of 5YR, value of 4, and chroma of 6 or 8.

The B2t horizon extends to 80 inches or more. It has hue of 10R, 2.5R or 5YR, value of 4 or 5, and chroma of 6 or 8; or hue of 7.5YR, value of 5 or 6, and chroma of 6 or 8. The texture is fine sandy loam or sandy clay loam.

Wagram series

The Wagram series consists of well drained, moderately permeable, nearly level to sloping soils on broad ridges and hillsides on the uplands. They formed in loamy marine sediments. Slopes range from 0 to 8 percent. The water table is below 72 inches. These soils are loamy, siliceous, thermic Arenic Paleudults.

Wagram soils are closely associated with Blanton, Dothan, Lucy, Norfolk, Ocilla, and Troup soils. Blanton and Troup soils have an A horizon more than 40 inches thick. Dothan and Norfolk soils have an A horizon less than 20 inches thick. In addition, Dothan soils have more than 5 percent plinthite in the argillic horizon. Lucy soils have hues redder than 7.5YR in the argillic horizon. Ocilla soils are wetter and have low-chroma mottles within a depth of about 30 inches.

Typical pedon of Wagram loamy fine sand, 0 to 5 percent slopes, in wooded area 50 feet north of Bermuda Road, 0.5 mile west of Meridian Road, SW1/4NE1/4 sec. 13, T. 1 N., R. 1 W.

A1—0 to 3 inches; grayish brown (10YR 5/2) loamy fine sand; weak fine granular structure; very friable; many roots; very strongly acid; abrupt smooth boundary.

A21—3 to 9 inches; yellowish brown (10YR 5/4) loamy fine sand; single grained; loose; many roots; strongly acid; gradual wavy boundary.

A22—9 to 19 inches; yellowish brown (10YR 5/6) loamy fine sand; single grained; loose; few roots; strongly acid; gradual wavy boundary.

A23—19 to 31 inches; brownish yellow (10YR 6/6) loamy fine sand; single grained; loose; strongly acid; gradual wavy boundary.

B21t—31 to 43 inches; brownish yellow (10YR 6/8) fine sandy loam; weak medium subangular blocky structure; friable; clay bridging between sand grains; strongly acid; gradual wavy boundary.

B22t—43 to 52 inches; brownish yellow (10YR 6/8) sandy clay loam; weak medium subangular blocky structure; friable; clay bridging between sand grains; strongly acid; gradual wavy boundary.

B23t—52 to 62 inches; brownish yellow (10YR 6/8) sandy clay loam; few medium distinct red (2.5YR 5/8) mottles; weak medium subangular blocky structure; friable; clay bridging between sand grains; strongly acid; gradual irregular boundary.

C—62 to 80 inches; reticulately mottled light gray (10YR 7/1) red (10R 5/8) and brownish yellow (10YR 6/8) sandy clay; weak coarse subangular blocky structure, grading to massive with depth; friable; strongly acid.

Reaction is strongly acid to very strongly acid throughout.

The A1 or Ap horizon has hue of 10YR with value of 4 or 5 and chroma of 1 or 2 or with value of 6 and chroma of 2; or hue of 2.5Y, value of 4 to 6, and chroma of 2. Thickness ranges from 3 to 6 inches. The A2 horizon has hue of 10YR, value of 5 or 6, and chroma of 4 through 6. Thickness ranges from 20 to 30 inches.

The B2t horizon has hue of 10YR, value of 5 or 6, and chroma of 6 or 8. Texture is sandy clay loam or fine sandy loam, but dominant texture is sandy clay loam. In some pedons the B3 horizon is not present, and the Bt horizon extends to 80 inches or more. Where present, the Bt horizon is reticulately mottled gray, red, brown, or yellow sandy clay loam or sandy clay. Depth to the C horizon is more than 60 inches.

Yonges series

The Yonges series consists of poorly drained, moderately slowly permeable, nearly level soils in low areas and poorly defined drainageways on the uplands. They formed in loamy marine sediments. Slopes are less than 2 percent. The water table is within 10 inches of the soil surface for about 6 months. They are flooded frequently for long periods in the winter. These soils are fine-loamy, mixed, thermic Typic Ochraqualfs.

Yonges soils are closely associated with Albany, Dothan, Lynchburg, Norfolk, Orangeburg, and Plummer soils. These soils have low base saturation. In addition, Albany soils have an A horizon 20 to 40 inches thick; Dothan, Norfolk, and Orangeburg soils are well drained; Lynchburg soils are somewhat poorly drained; and Plummer soils have an A horizon more than 40 inches thick.

Typical pedon of Yonges fine sandy loam 100 feet south of private road, 500 feet east of U.S. Highway 27, about 4,200 feet northwest of intersection of U.S. Highway 27 and Florida Highway 157, NW1/4SE1/4 sec. 30, T. 2 N., R. 1 W.

A1—0 to 5 inches; very dark grayish brown (10YR 3/2) fine sandy loam; weak fine granular structure; very friable; many roots; extremely acid; clear smooth boundary.

A2—5 to 9 inches; gray (10YR 5/1) fine sand; weak fine granular structure; very friable; many fine roots; strongly acid; abrupt wavy boundary.

B21tg—9 to 24 inches; gray (10YR 6/1) sandy clay loam; common medium distinct light olive brown (5Y 5/4) and dark brown (7.5YR 4/4) mottles; weak coarse subangular blocky structure; friable; many fine roots; medium acid; gradual wavy boundary.

B22tg—24 to 53 inches; greenish gray (5G 5/1) sandy clay loam; common medium distinct grayish green (5G 5/2) mottles; moderate medium subangular blocky structure; friable; neutral; gradual wavy boundary.

B23tg—53 to 71 inches; olive gray (5Y 5/2) sandy clay loam; common medium distinct gray (5Y 5/1, 6/1) mottles; weak coarse subangular blocky structure; friable to firm; dark gray (5Y 4/1) stains on structural planes; mildly alkaline; gradual wavy boundary.

B3g—71 to 80 inches; light gray (5Y 7/2) sandy clay loam; common medium distinct olive yellow (5Y 6/8) mottles; massive; friable; sticky; few lenses of sand 1 inch thick; neutral.

The solum thickness is 50 to 80 inches or more. Soil reaction ranges from extremely acid to mildly alkaline in the A horizon and from medium acid to moderately alkaline in the Btg horizon.

Thickness of the A horizon is about 20 inches. The A1 horizon has hue of 10YR, value of 3 or 4, and chroma of 1 or 2. It is 5 to 8 inches thick. The A2 horizon has hue of 10YR, value of 5 to 7 and chroma of 1 or 2. It is 0 to 8 inches thick.

The Btg horizon has hue of 10YR to 5GY, value of 4 to 7, and chroma of 0 to 2. Texture is sandy clay loam. Mottles range from few to many. The B3g horizon has color like that of the Btg horizon. This horizon is fine sandy loam or sandy clay loam.

The Cg horizon, where present, has color similar to that of the Btg horizon. Texture is sandy loam, fine sandy loam or sandy clay loam and is usually stratified.

formation of the soils

In this section, the factors of soil formation are discussed and related to the soils in Leon County. In addition, the processes of soil formation are described.

factors of soil formation

Soil is produced by forces of weathering and soil formation acting on the parent material that has been deposited or accumulated by geologic agencies. The kind of soil that forms depends on five major factors—the climate under which soil material has existed since accumulation; the plant and animal life in and on the soil; the type of parent material; the relief, or lay of the land; and the length of time the forces of soil formation have acted on the soil material.

The five soil-forming factors are interdependent; each modifies the effect of the others. Any one of the five factors can have more influence than the others on the formation of a soil and can account for most of its properties. For example, if the parent material is quartz sand, the soil generally has only weakly expressed horizons. The effect of the parent material is modified greatly in some places by the effects of climate, relief, and plants and animals in and on the soil. As a soil forms, it is influenced by more than one of the five factors, but in some places all but one factor can have little effect. A modification or variation in any of these factors results in a different soil.

climate

The amount of precipitation, the temperature, the humidity, and the wind are the climatic forces that act on parent material of soils. These forces also cause some variation in the plant and animal life on and in the soils. In this way they influence changes in the parent material that result in soil development.

Leon County has a warm humid climate. The Gulf of Mexico, together with numerous inland lakes, has a moderating effect on both summer and winter temperatures. Summer temperatures are fairly uniform from day to day. Winter temperatures, however, vary considerably from day to day. Rainfall averages about 57 inches a year.

Because of warm climate and abundant rainfall, chemical and biological actions are rapid. The abundant rain leaches the soil of many plant nutrients.

plants and animals

Plants have been the principal biological factor in the formation of soils in this survey area. Animals, insects, bacteria, and fungi also have been important in furnishing organic matter and bringing plant nutrients from the lower to the upper horizons. Differences among soils in amount of organic matter, nitrogen, and plant nutrients and in soil structure and porosity are among those caused by plants and animals.

parent material

The parent material of the soils in Leon County consists of beds of sandy and clayey materials that were transported by floodwaters of major streams and by waters of the sea, which covered the area a number of times during the Pleistocene. During the high stands of the sea, the Mio-Pliocene sediments were eroded and redeposited or were reworked on the shallow sea bottom to form marine terraces and hills.

All of Leon County is underlain by the Suwannee Limestone. The Suwannee Formation is covered in the northern part of the county by sand and clay of the Miccosukee and Hawthorne Formations, in the southeastern part by sand of the St. Marks Formation, and in the southwestern part by sand of the Jackson Bluff Formation. Several sinkholes in the southern part of the county expose the Suwannee Limestone.

The parent materials in the county differ widely in mineral and chemical composition and in their physical constitution. The main physical differences, for example the differences between sand, silt, and clay, can be observed in the field. Other differences, such as mineral and chemical composition, are important to soil formation and affect present physical and chemical characteristics of the soils. Many differences among soils in the county reflect original differences among the parent materials.

relief

Relief has affected the formation of soils in Leon County primarily through its influence on soil-water relationships and through its effect on erosion in the northern part of the county. Other factors of soil formation normally associated with relief, such as temperature and plant cover, are of minor importance in the county.

Four general relief areas—flatwoods, sand hills, rolling uplands, and flood plains—are in the county. There are

differences in soils in these different general areas that are directly related to relief.

The soils in the flatwoods area have a high water table and are periodically wet at the surface. These soils are not as highly leached as those of the sandhills and the rolling uplands. The soils in the sandhills are deep sandy soils that are subject to droughtiness. The soils on the rolling uplands are mostly loamy and clayey. These soils are subject to erosion. The soils on the flood plains are subject to flooding and prolonged wetness.

time

Time is an important factor in soil formation. The physical and chemical changes brought about by climate, living organisms, and relief are slow. The length of time needed to convert raw geologic materials into soil varies according to the nature of the geologic material and the interaction of the other factors. Some basic minerals, from which soils are formed, weather fairly rapidly, but others are chemically inert and show little change over long periods of time. The processes of translocation of fine particles within the soil to form various horizons is variable under different conditions, but the processes always involve relatively long periods of time.

In Leon County the dominant geological materials are inactive. The sands are almost pure quartz and are highly resistant to weathering. The finer textured silts and clays are the product of earlier weathering.

Relatively little geological time has elapsed since the material in which the soils in the county formed was laid down by the sea. The loamy and clayey horizons formed in places through processes of clay translocation.

processes of soil formation

Soil morphology refers to the process involved in the formation of a soil horizon or soil horizon differentiation. The differentiation of horizons in soils in Leon County is the result of the accumulation of organic matter, the leaching of carbonates, the reduction and transfer of iron, the accumulation of silicate clay minerals, or more than one of these processes.

Some organic matter has accumulated in the upper layer of most of the soils to form an A1 horizon. The quantity of organic matter is small in some of the soils but large in others.

Leaching of carbonates and salts has occurred in nearly all of the soils. The effect of leaching has been indirect in that the leaching permitted the subsequent translocation of silicate clay materials in some soils. Most of the soils of the county are leached to varying degrees.

Reduction and transfer of iron has occurred in most of the soils in the county except the organic soils. In some of the wet soils, iron has been segregated within the deeper horizons to form reddish brown mottles and concretions.

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glossary

ABC soil. A soil having an A, a B, and a C horizon.

AC soil. A soil having only an A and a C horizon. Commonly such soil formed in recent alluvium or on steep rocky slopes.

Aeration, soil. The exchange of air in soil with air from the atmosphere. The air in a well aerated soil is similar to that in the atmosphere; the air in a poorly aerated soil is considerably higher in carbon dioxide and lower in oxygen.

Aggregate, soil. Many fine particles held in a single mass or cluster. Natural soil aggregates, such as granules, blocks, or prisms, are called peds. Clods are aggregates produced by tillage or logging.

Area reclaim (in tables). An area difficult to reclaim after the removal of soil for construction and other uses. Revegetation and erosion control are extremely difficult.

Available water capacity (available moisture capacity). The capacity of soils to hold water available for use by most plants. It is commonly defined as the difference between the amount of soil water at field moisture capacity and the amount at wilting point. It is commonly expressed as inches of water per inch of soil. The capacity, in inches, in a 60-inch profile or to a limiting layer is expressed as—

	Inches
Very low	0 to 3
Low	3 to 6
Moderate	6 to 9
High	9 to 12
Very high	More than 12

Base saturation. The degree to which material having cation exchange properties is saturated with exchangeable bases (sum of Ca, Mg, Na, K), expressed as a percentage of the total cation exchange capacity.

Bedrock. The solid rock that underlies the soil and other unconsolidated material or that is exposed at the surface.

Cation. An ion carrying a positive charge of electricity. The common soil cations are calcium, potassium, magnesium, sodium, and hydrogen.

Cation-exchange capacity. The total amount of exchangeable cations that can be held by the soil, expressed in terms of milliequivalents per 100 grams of soil at neutrality (pH 7.0) or at some other stated pH value. The term, as applied to soils, is synonymous with base-exchange capacity, but is more precise in meaning.

Clay. As a soil separate, the mineral soil particles less than 0.002 millimeter in diameter. As a soil textural class, soil material that is 40 percent or more clay, less than 45 percent sand, and less than 40 percent silt.

Clay film. A thin coating of oriented clay on the surface of a soil aggregate or lining pores or root channels. Synonyms: clay coating, clay skin.

Coarse fragments. If round, mineral or rock particles 2 millimeters to 25 centimeters (10 inches) in diameter; if flat, mineral or rock particles (flagstone) 15.2 to 38.1 centimeters (6 to 15 inches) long.

Coarse textured soil. Sand or loamy sand.

Complex slope. Irregular or variable slope. Planning or constructing terraces, diversions, and other water-control measures on a complex slope is difficult.

Concretions. Grains, pellets, or nodules of various sizes, shapes, and colors consisting of concentrated compounds or cemented soil grains. The composition of most concretions is unlike that of the surrounding soil. Calcium carbonate and iron oxide are common compounds in concretions.

Consistence, soil. The feel of the soil and the ease with which a lump can be crushed by the fingers. Terms commonly used to describe consistence are—

Loose.—Noncoherent when dry or moist; does not hold together in a mass.

Friable.—When moist, crushes easily under gentle pressure between thumb and forefinger and can be pressed together into a lump.

Firm.—When moist, crushes under moderate pressure between thumb and forefinger, but resistance is distinctly noticeable.

Plastic.—When wet, readily deformed by moderate pressure but can be pressed into a lump; will form a "wire" when rolled between thumb and forefinger.

Sticky.—When wet, adheres to other material and tends to stretch somewhat and pull apart rather than to pull free from other material.

Hard.—When dry, moderately resistant to pressure; can be broken with difficulty between thumb and forefinger.

Soft.—When dry, breaks into powder or individual grains under very slight pressure.

Cemented.—Hard; little affected by moistening.

Contour stripcropping. Growing crops in strips that follow the contour. Strips of grass or close-growing

crops are alternated with strips of clean-tilled crops or summer fallow.

Control section. The part of the soil on which classification is based. The thickness varies among different kinds of soil, but for many it is that part of the soil profile between depths of 10 inches and 40 or 80 inches.

Corrosive. High risk of corrosion to uncoated steel or deterioration of concrete.

Cover crop. A close-growing crop grown primarily to improve and protect the soil between periods of regular crop production, or a crop grown between trees and vines in orchards and vineyards.

Cutbanks cave (in tables). The walls of excavations tend to cave in or slough.

Deferred grazing. Postponing grazing or arresting grazing for a prescribed period.

Depth to rock (in tables). Bedrock is too near the surface for the specified use.

Diversion (or diversion terrace). A ridge of earth, generally a terrace, built to protect downslope areas by diverting runoff from its natural course.

Drainage class (natural). Refers to the frequency and duration of periods of saturation or partial saturation during soil formation, as opposed to altered drainage, which is commonly the result of artificial drainage or irrigation but may be caused by the sudden deepening of channels or the blocking of drainage outlets. Seven classes of natural soil drainage are recognized:

Excessively drained.—Water is removed from the soil very rapidly. Excessively drained soils are commonly very coarse textured, rocky, or shallow. Some are steep. All are free of the mottling related to wetness.

Somewhat excessively drained.—Water is removed from the soil rapidly. Many somewhat excessively drained soils are sandy and rapidly pervious. Some are shallow. Some are so steep that much of the water they receive is lost as runoff. All are free of the mottling related to wetness.

Well drained.—Water is removed from the soil readily, but not rapidly. It is available to plants throughout most of the growing season, and wetness does not inhibit growth of roots for significant periods during most growing seasons. Well drained soils are commonly medium textured. They are mainly free of mottling.

Moderately well drained.—Water is removed from the soil somewhat slowly during some periods. Moderately well drained soils are wet for only a short time during the growing season, but periodically they are wet long enough that most mesophytic crops are affected. They commonly have a slowly pervious layer within or directly below the solum, or periodically receive high rainfall, or both.

Somewhat poorly drained.—Water is removed slowly enough that the soil is wet for significant periods during the growing season. Wetness markedly restricts the growth of mesophytic crops unless artificial drainage is provided. Somewhat poorly drained soils commonly have a slowly pervious layer, a high water table, additional water from seepage, nearly continuous rainfall, or a combination of these.

Poorly drained.—Water is removed so slowly that the soil is saturated periodically during the growing season or remains wet for long periods. Free water is commonly at or near the surface for long enough during the growing season that most mesophytic crops cannot be grown unless the soil is artificially drained. The soil is not continuously saturated in layers directly below plow depth. Poor drainage results from a high water table, a slowly pervious layer within the profile, seepage, nearly continuous rainfall, or a combination of these.

Very poorly drained.—Water is removed from the soil so slowly that free water remains at or on the surface during most of the growing season. Unless the soil is artificially drained, most mesophytic crops cannot be grown. Very poorly drained soils are commonly level or depressed and are frequently ponded. Yet, where rainfall is high and nearly continuous, they can have moderate or high slope gradients.

Drainage, surface. Runoff, or surface flow of water, from an area.

Eluviation. The movement of material in true solution or colloidal suspension from one place to another within the soil. Soil horizons that have lost material through eluviation are eluvial; those that have received material are illuvial.

Erosion. The wearing away of the land surface by water, wind, ice, or other geologic agents and by such processes as gravitational creep.

Erosion (geologic). Erosion caused by geologic processes acting over long geologic periods and resulting in the wearing away of mountains and the building up of such landscape features as flood plains and coastal plains. Synonym: natural erosion.

Erosion (accelerated). Erosion much more rapid than geologic erosion, mainly as a result of the activities of man or other animals or of a catastrophe in nature, for example, fire, that exposes the surface.

Excess fines (in tables). Excess silt and clay in the soil. The soil does not provide a source of gravel or sand for construction purposes.

Fast intake (in tables). The rapid movement of water into the soil.

Fertility, soil. The quality that enables a soil to provide plant nutrients, in adequate amounts and in proper balance, for the growth of specified plants when light, moisture, temperature, tilth, and other growth factors are favorable.

Field moisture capacity. The moisture content of a soil, expressed as a percentage of the ovendry weight,

after the gravitational, or free, water has drained away; the field moisture content 2 or 3 days after a soaking rain; also called *normal field capacity, normal moisture capacity,* or *capillary capacity.*

Fine textured soil. Sandy clay, silty clay, and clay.

Flood plain. A nearly level alluvial plain that borders a stream and is subject to flooding unless protected artificially.

Genesis, soil. The mode of origin of the soil. Refers especially to the processes or soil-forming factors responsible for the formation of the solum, or true soil, from the unconsolidated parent material.

Gleyed soil. Soil that formed under poor drainage, resulting in the reduction of iron and other elements in the profile and in gray colors and mottles.

Grassed waterway. A natural or constructed waterway, typically broad and shallow, seeded to grass as protection against erosion. Conducts surface water away from cropland.

Gravel. Rounded or angular fragments of rock up to 3 inches (2 millimeters to 7.5 centimeters) in diameter. An individual piece is a pebble.

Ground water (geology). Water filling all the unblocked pores of underlying material below the water table.

Gully. A miniature valley with steep sides cut by running water and through which water ordinarily runs only after rainfall. The distinction between a gully and a rill is one of depth. A gully generally is an obstacle to farm machinery and is too deep to be obliterated by ordinary tillage; a rill is of lesser depth and can be smoothed over by ordinary tillage.

Horizon, soil. A layer of soil, approximately parallel to the surface, having distinct characteristics produced by soil-forming processes. In the identification of soil horizons, an upper case letter represents the major horizons. Numbers or lower case letters that follow represent subdivisions of the major horizons. An explanation of the subdivisions is given in the *Soil Survey Manual.* The major horizons of mineral soil are as follows:

O horizon.—An organic layer of fresh and decaying plant residue at the surface of a mineral soil.

A horizon.—The mineral horizon at or near the surface in which an accumulation of humified organic matter is mixed with the mineral material. Also, a plowed surface horizon, most of which was originally part of a B horizon.

B horizon.—The mineral horizon below an A horizon. The B horizon is in part a layer of transition from the overlying A to the underlying C horizon. The B horizon also has distinctive characteristics such as (1) accumulation of clay, sesquioxides, humus, or a combination of these; (2) prismatic or blocky structure; (3) redder or browner colors than those in the A horizon; or (4) a combination of these. The combined A and B horizons are generally called the solum, or true soil. If a soil does not have a B horizon, the A horizon alone is the solum.

C horizon.—The mineral horizon or layer, excluding indurated bedrock, that is little affected by soil-forming processes and does not have the properties typical of the A or B horizon. The material of a C horizon may be either like or unlike that in which the solum formed. If the material is known to differ from that in the solum, the Roman numeral II precedes the letter C.

R layer.—Consolidated rock beneath the soil. The rock commonly underlies a C horizon, but can be directly below an A or a B horizon.

Humus. The well decomposed, more or less stable part of the organic matter in mineral soils.

Hydrologic soil groups. Refers to soils grouped according to their runoff-producing characteristics. The chief consideration is the inherent capacity of soil bare of vegetation to permit infiltration. The slope and the kind of plant cover are not considered but are separate factors in predicting runoff. Soils are assigned to four groups. In group A are soils having a high infiltration rate when thoroughly wet and having a low runoff potential. They are mainly deep, well drained, and sandy or gravelly. In group D, at the other extreme, are soils having a very slow infiltration rate and thus a high runoff potential. They have a claypan or clay layer at or near the surface, have a permanent high water table, or are shallow over nearly impervious bedrock or other material. A soil is assigned to two hydrologic groups if part of the acreage is artificially drained and part is undrained.

Illuviation. The movement of soil material from one horizon to another in the soil profile. Generally, material is removed from an upper horizon and deposited in a lower horizon.

Impervious soil. A soil through which water, air, or roots penetrate slowly or not at all. No soil is absolutely impervious to air and water all the time.

Infiltration. The downward entry of water into the immediate surface of soil or other material, as contrasted with percolation, which is movement of water through soil layers or material.

Infiltration rate. The rate at which water penetrates the surface of the soil at any given instant, usually expressed in inches per hour. The rate can be limited by the infiltration capacity of the soil or the rate at which water is applied at the surface.

Irrigation. Application of water to soils to assist in production of crops. Methods of irrigation are—

Border.—Water is applied at the upper end of a strip in which the lateral flow of water is controlled by small earth ridges called border dikes, or borders.

Basin.—Water is applied rapidly to nearly level plains surrounded by levees or dikes.

Controlled flooding.—Water is released at intervals from closely spaced field ditches and distributed uniformly over the field.

Corrugation.—Water is applied to small, closely spaced furrows or ditches in fields of close-growing

crops or in orchards so that it flows in only one direction.

Drip (or trickle).—Water is applied slowly and under low pressure to the surface of the soil or into the soil through such applicators as emitters, porous tubing, or perforated pipe.

Furrow.—Water is applied in small ditches made by cultivation implements. Furrows are used for tree and row crops.

Sprinkler.—Water is sprayed over the soil surface through pipes or nozzles from a pressure system.

Subirrigation.—Water is applied in open ditches or tile lines until the water table is raised enough to wet the soil.

Wild flooding.—Water, released at high points, is allowed to flow onto an area without controlled distribution.

Leaching. The removal of soluble material from soil or other material by percolating water.

Liquid limit. The moisture content at which the soil passes from a plastic to a liquid state.

Loam. Soil material that is 7 to 27 percent clay particles, 28 to 50 percent silt particles, and less than 52 percent sand particles.

Low strength. The soil is not strong enough to support loads.

Medium textured soil. Very fine sandy loam, loam, silt loam, or silt.

Mineral soil. Soil that is mainly mineral material and low in organic material. Its bulk density is more than that of organic soil.

Miscellaneous area. An area that has little or no natural soil and supports little or no vegetation.

Morphology, soil. The physical makeup of the soil, including the texture, structure, porosity, consistence, color, and other physical, mineral, and biological properties of the various horizons, and the thickness and arrangement of those horizons in the soil profile.

Mottling, soil. Irregular spots of different colors that vary in number and size. Mottling generally indicates poor aeration and impeded drainage. Descriptive terms are as follows: abundance—*few, common,* and *many*; size—*fine, medium,* and *coarse*; and contrast—*faint, distinct,* and *prominent*. The size measurements are of the diameter along the greatest dimension. *Fine* indicates less than 5 millimeters (about 0.2 inch); *medium*, from 5 to 15 millimeters (about 0.2 to 0.6 inch); and *coarse*, more than 15 millimeters (about 0.6 inch).

Muck. Dark colored, finely divided, well decomposed organic soil material. (See Sapric soil material.)

Munsell notation. A designation of color by degrees of the three simple variables—hue, value, and chroma. For example, a notation of 10YR 6/4 is a color of 10YR hue, value of 6, and chroma of 4.

Neutral soil. A soil having a pH value between 6.6 and 7.3. (See Reaction, soil.)

Nutrient, plant. Any element taken in by a plant essential to its growth. Plant nutrients are mainly nitrogen, phosphorus, potassium, calcium, magnesium, sulfur, iron, manganese, copper, boron, and zinc obtained from the soil and carbon, hydrogen, and oxygen obtained from the air and water.

Organic matter. Plant and animal residue in the soil in various stages of decomposition.

Parent material. The unconsolidated organic and mineral material in which soil forms.

Peat. Unconsolidated material, largely undecomposed organic matter, that has accumulated under excess moisture. (See Fibric soil material.)

Pedon. The smallest volume that can be called "a soil." A pedon is three dimensional and large enough to permit study of all horizons. Its area ranges from about 10 to 100 square feet (1 square meter to 10 square meters), depending on the variability of the soil.

Percolation. The downward movement of water through the soil.

Percs slowly (in tables). The slow movement of water through the soil adversely affecting the specified use.

Phase, soil. A subdivision of a soil series based on features that affect its use and management. For example, slope, stoniness, and thickness.

pH value. A numerical designation of acidity and alkalinity in soil. (See Reaction, soil.)

Piping (in tables). Formation of subsurface tunnels or pipelike cavities by water moving through the soil.

Plasticity index. The numerical difference between the liquid limit and the plastic limit; the range of moisture content within which the soil remains plastic.

Plastic limit. The moisture content at which a soil changes from semisolid to plastic.

Plinthite. The sesquioxide-rich, humus-poor, highly weathered mixture of clay with quartz and other diluents. It commonly appears as red mottles, usually in platy, polygonal, or reticulate patterns. Plinthite changes irreversibly to an ironstone hardpan or to irregular aggregates on repeated wetting and drying, especially if it is exposed also to heat from the sun. In a moist soil, plinthite can be cut with a spade. It is a form of laterite.

Ponding. Standing water on soils in closed depressions. The water can be removed only by percolation or evapotranspiration.

Poor outlets (in tables). Refers to areas where surface or subsurface drainage outlets are difficult or expensive to install.

Productivity, soil. The capability of a soil for producing a specified plant or sequence of plants under specific management.

Profile, soil. A vertical section of the soil extending through all its horizons and into the parent material.

Reaction, soil. A measure of acidity or alkalinity of a soil, expressed in pH values. A soil that tests to pH

7.0 is described as precisely neutral in reaction because it is neither acid nor alkaline. The degree of acidity or alkalinity is expressed as—

	pH
Extremely acid	Below 4.5
Very strongly acid	4.5 to 5.0
Strongly acid	5.1 to 5.5
Medium acid	5.6 to 6.0
Slightly acid	6.1 to 6.5
Neutral	6.6 to 7.3
Mildly alkaline	7.4 to 7.8
Moderately alkaline	7.9 to 8.4
Strongly alkaline	8.5 to 9.0
Very strongly alkaline	9.1 and higher

Relief. The elevations or inequalities of a land surface, considered collectively.

Root zone. The part of the soil that can be penetrated by plant roots.

Runoff. The precipitation discharged into stream channels from an area. The water that flows off the surface of the land without sinking into the soil is called surface runoff. Water that enters the soil before reaching surface streams is called ground-water runoff or seepage flow from ground water.

Sand. As a soil separate, individual rock or mineral fragments from 0.05 millimeter to 2.0 millimeters in diameter. Most sand grains consist of quartz. As a soil textural class, a soil that is 85 percent or more sand and not more than 10 percent clay.

Sapric soil material (muck). The most highly decomposed of all organic soil material. Muck has the least amount of plant fiber, the highest bulk density, and the lowest water content at saturation of all organic soil material.

Seepage (in tables). The movement of water through the soil. Seepage adversely affects the specified use.

Series, soil. A group of soils that have profiles that are almost alike, except for differences in texture of the surface layer or of the underlying material. All the soils of a series have horizons that are similar in composition, thickness, and arrangement.

Shrink-swell. The shrinking of soil when dry and the swelling when wet. Shrinking and swelling can damage roads, dams, building foundations, and other structures. It can also damage plant roots.

Silt. As a soil separate, individual mineral particles that range in diameter from the upper limit of clay (0.002 millimeter) to the lower limit of very fine sand (0.05 millimeter). As a soil textural class, soil that is 80 percent or more silt and less than 12 percent clay.

Sinkhole. A depression in the landscape where limestone has been dissolved.

Site index. A designation of the quality of a forest site based on the height of the dominant stand at an arbitrarily chosen age. For example, if the average height attained by dominant and codominant trees in a fully stocked stand at the age of 50 years is 75 feet, the site index is 75 feet.

Slope. The inclination of the land surface from the horizontal. Percentage of slope is the vertical distance divided by horizontal distance, then multiplied by 100. Thus, a slope of 20 percent is a drop of 20 feet in 100 feet of horizontal distance.

Slow intake (in tables). The slow movement of water into the soil.

Slow refill (in tables). The slow filling of ponds, resulting from restricted permeability in the soil.

Soil. A natural, three-dimensional body at the earth's surface. It is capable of supporting plants and has properties resulting from the integrated effect of climate and living matter acting on earthy parent material, as conditioned by relief over periods of time.

Solum. The upper part of a soil profile, above the C horizon, in which the processes of soil formation are active. The solum in soil consists of the A and B horizons. Generally, the characteristics of the material in these horizons are unlike those of the underlying material. The living roots and plant and animal activities are largely confined to the solum.

Stripcropping. Growing crops in a systematic arrangement of strips or bands which provide vegetative barriers to wind and water erosion.

Structure, soil. The arrangement of primary soil particles into compound particles or aggregates. The principal forms of soil structure are—*platy* (laminated), *prismatic* (vertical axis of aggregates longer than horizontal), *columnar* (prisms with rounded tops), *blocky* (angular or subangular), and *granular*. *Structureless* soils are either *single grained* (each grain by itself, as in dune sand) or *massive* (the particles adhering without any regular cleavage, as in many hardpans).

Subsoil. Technically, the B horizon; roughly, the part of the solum below plow depth.

Substratum. The part of the soil below the solum.

Subsurface layer. Technically, the A2 horizon. Generally refers to a leached horizon lighter in color and lower in content of organic matter than the overlying surface layer.

Surface layer. The soil ordinarily moved in tillage, or its equivalent in uncultivated soil, ranging in depth from 4 to 10 inches (10 to 25 centimeters). Frequently designated as the "plow layer," or the "Ap horizon."

Terrace. An embankment, or ridge, constructed across sloping soils on the contour or at a slight angle to the contour. The terrace intercepts surface runoff so that water soaks into the soil or flows slowly to a prepared outlet. A terrace in a field is generally built so that the field can be farmed. A terrace intended mainly for drainage has a deep channel that is maintained in permanent sod.

Texture, soil. The relative proportions of sand, silt, and clay particles in a mass of soil. The basic textural classes, in order of increasing proportion of fine particles, are *sand, loamy sand, sandy loam, loam, silt loam, silt, sandy clay loam, clay loam, silty clay loam, sandy clay, silty clay,* and *clay*. The sand,

loamy sand, and sandy loam classes may be further divided by specifying "coarse," "fine," or "very fine."

Thin layer (in tables). Otherwise suitable soil material too thin for the specified use.

Topsoil. The upper part of the soil, which is the most favorable material for plant growth. It is ordinarily rich in organic matter and is used to topdress roadbanks, lawns, and land affected by mining.

Unstable fill (in tables). Risk of caving or sloughing on banks of fill material.

Upland (geology). Land at a higher elevation, in general, than the alluvial plain or stream terrace; land above the lowlands along streams.

Weathering. All physical and chemical changes produced in rocks or other deposits at or near the earth's surface by atmospheric agents. These changes result in disintegration and decomposition of the material.

Wilting point (or permanent wilting point). The moisture content of soil, on an ovendry basis, at which a plant (specifically sunflower) wilts so much that it does not recover when placed in a humid, dark chamber.

tables

TABLE 1.--FREEZE DATA

[Recorded at Tallahassee Municipal Airport, Tallahassee, Florida. Based on 30 years of data]

Freeze threshold temperature	Mean date of last spring occurrence	Mean date of first fall occurrence	Mean number of days between dates	Number of occurrences in spring	Number of occurrences in fall
32	February 26	December 3	280	29	23
28	February 4	December 16	316	25	16
24	January 18	December 22	338	15	11
20	January 6	December 27	356	7	7
16	January 2			5	0

TABLE 2.--TEMPERATURE AND PRECIPITATION

[Recorded at Tallahassee Municipal Airport, Tallahassee, Florida]

Month	Temperature					Precipitation				
	Monthly normal mean	Normal daily maximum	Normal daily minimum	Mean number of days with temperature—90° F or higher	Mean number of days with temperature—32° F or lower	Normal total	Maximum total	Minimum total	Mean number of days with rainfall of---0.10 inch or more	Mean number of days with rainfall of---0.50 inch or more
	°F	°F	°F			In	In	In		
January	53.9	65.1	42.7	0	10	3.42	9.27	0.40	5	2
February	55.6	67.0	44.2	0	8	4.18	11.50	2.43	5	4
March	60.6	72.2	49.0	0	4	5.18	11.49	1.29	6	3
April	67.5	79.0	55.9	2	0	4.64	7.14	1.05	5	3
May	74.9	86.4	63.3	10	0	4.10	8.23	trace	7	3
June	80.2	90.5	69.9	20	0	6.54	12.62	2.96	9	4
July	81.3	90.5	72.0	21	0	8.05	20.12	4.87	13	5
August	81.1	90.3	71.8	21	0	6.93	10.75	4.88	9	4
September	78.1	87.2	68.9	15	0	5.51	15.92	1.57	7	4
October	69.6	80.6	58.6	2	0	2.43	10.48	trace	5	2
November	59.2	71.1	47.3	0	5	2.44	7.42	0.88	4	2
December	54.1	65.4	42.8	0	9	3.44	12.65	2.44	4	3
Year	68.0	78.8	57.2	90	37	56.86			79	39

TABLE 3.--SOIL RATINGS AND LIMITATIONS OF GENERAL SOIL MAP UNITS[1]

[See the section "Use and Management of the Soils" for an explanation of the rating system]

Name of map unit and component soils[2]	Percent of map unit[3]	Soil suitability for---		Soil potential for---	Limitations for urban uses		
		Cropland	Pasture	Woodland pine trees	Sanitary facilities[4]	Building sites[5]	Recreational areas[6]
1. Kershaw-Ortega-Alpin (20 percent):		Unsuited	Poor	Moderately high	Severe	Slight	Severe.
Kershaw	30	Unsuited: droughty, very low fertility.	Poor: droughty, very low fertility.	Low: seedling mortality, equipment limitations.	Severe: poor filter, too sandy.	Slight	Severe: too sandy.
Ortega	23	Moderately well: droughty, low fertility.	Moderately well: droughty, low fertility.	Moderately high: seedling mortality, equipment limitations.	Severe: poor filter, seepage, too sandy.	Slight	Severe: too sandy.
Alpine	20	Moderate: droughty, low fertility.	Moderate: droughty, low fertility.	Moderately high: seedling mortality, equipment limitations.	Severe: poor filter, seepage, too sandy.	Slight	Severe: too sandy.
Other	27						
2. Blanton-Lutterloh-Chaires (5 percent):		Moderately well:	Moderately well:	Moderately high:	Severe	Slight	Severe.
Blanton	50	Moderately well: droughty, low fertility.	Moderately well: droughty, low fertility.	Moderately high: seedling mortality, equipment limitations.	Severe: too sandy.	Slight	Severe: too sandy.
Lutterloh	25	Moderately well: wetness, low fertility.	Moderate: wetness, low fertility.	Moderately high: seedling mortality, equipment limitations.	Severe: wetness, too sandy.	Moderate: wetness.	Severe: too sandy.
Chaires	10	Moderate: wetness, low fertility.	Well: wetness.	Moderately high: seedling mortality, equipment limitations.	Severe: wetness, percs slowly, too sandy.	Severe: wetness.	Severe: wetness, too sandy.
Other	15						

See footnotes at end of table.

TABLE 3.--SOIL RATINGS AND LIMITATIONS OF GENERAL SOIL MAP UNITS[1]--Continued

Name of map unit and component soils[2]	Percent of map unit[3]	Soil suitability for---		Soil potential for---	Limitations for urban uses		
		Cropland	Pasture	Woodland pine trees	Sanitary facilities[4]	Building sites[5]	Recreational areas[6]
3. Blanton-Wagram-Troup (3 percent):		Moderately well-	Moderately well-	Moderately high-	Severe----------	Slight----	Severe.
Blanton----------------	45	Moderately well: droughty, low fertility.	Moderately well: droughty, low fertility.	Moderately high: seedling mortality, plant competition.	Severe: too sandy.	Slight----	Severe: too sandy.
Wagram-----------------	35	Well: droughty, moderately low fertility.	Well: droughty, moderately low fertility.	Moderately high: equipment limitations, seedling mortality.	Slight----------	Slight----	Moderate:
Troup------------------	15	Moderately well: droughty, low fertility.	Moderately well: droughty, low fertility.	Moderately high: equipment limitations, seedling mortality.	Severe: too sandy.	Slight----	Severe: too sandy.
Other------------------	5						
4. Orangeburg-Lucy-Norfolk (26 percent):		Well------------	Well------------	High------------	Moderate--------	Slight----	Slight.
Orangeburg-------------	60	Well: erosion hazard.	Well: moderate fertility.	High: plant competition.	Moderate: percs slowly.	Slight----	Slight.
Lucy-------------------	13	Well: droughty, low fertility.	Well: droughty, low fertility.	Moderately high: seedling mortality, equipment limitations.	Moderate: percs slowly.	Slight----	Severe: too sandy.
Norfolk----------------	5	Well: erosion hazard.	Well: moderate fertility.	High: plant competion.	Moderate: wetness.	Slight----	Moderate: too sandy.
Other------------------	22						
5. Fuquay-Leefield-Bonifay (2 percent):		Well------------	Well------------	Moderately high-	Severe----------	Slight----	Severe.
Fuquay-----------------	45	Well: droughty, moderately low fertility.	Well: droughty.	Moderately high: seedling mortality, plant competition.	Moderate: percs slowly.	Slight----	Severe: too sandy.

See footnotes at end of table.

TABLE 3.--SOIL RATINGS AND LIMITATIONS OF GENERAL SOIL MAP UNITS[1]--Continued

Name of map unit and component soils[2]	Percent of map unit[3]	Soil suitability for--- Cropland	Soil suitability for--- Pasture	Soil potential for--- Woodland pine trees	Limitations for urban uses: Sanitary facilities[4]	Limitations for urban uses: Building sites[5]	Limitations for urban uses: Recreational areas[6]
Leefield	28	Well: wetness.	Well: wetness.	Moderately high: seedling mortality, plant competition.	Severe: wetness, percs slowly.	Moderate: wetness.	Severe: too sandy.
Bonifay	18	Moderately well: droughty, low fertility.	Moderate: droughty, low fertility.	Moderately high: seedling mortality, plant competition.	Severe: too sandy.	Slight	Severe: too sandy.
Other	9						
6. Dothan-Orangeburg-Fuquay (4 percent):		Well	Well	High	Severe	Slight	Moderate.
Dothan	40	Well: erosion hazard.	Well: moderate fertility.	High: plant competition.	Severe: wetness, percs slowly.	Slight	Moderate: percs slowly.
Orangeburg	20	Well: erosion hazard.	Well: moderate fertility.	High: plant competition.	Moderate: percs slowly.	Slight	Slight.
Fuquay	10	Well: droughty, moderate fertility.	Well: droughty.	High: seedling mortality, plant competition.	Moderate: percs slowly.	Slight	Severe: too sandy.
Other	30						
7. Faceville-Orangeburg-Dothan (9 percent):		Moderately well	Well	Moderately high	Moderate	Slight	Moderate.
Faceville	55	Moderately well: erosion hazard.	Well: moderately low fertility.	Moderately high: plant competition.	Moderate: percs slowly, too clayey.	Slight	Moderate: slope.
Orangeburg	20	Well: erosion hazard.	Well: moderate fertility.	High: plant competition.	Moderate: percs slowly.	Slight	Slight.
Dothan	8	Well: erosion hazard.	Well: moderate fertility.	High: plant competition.	Severe: wetness, percs slowly, too clayey.	Slight	Moderate: percs slowly.
Other	17						

See footnotes at end of table.

TABLE 3.--SOIL RATINGS AND LIMITATIONS OF GENERAL SOIL MAP UNITS[1]--Continued

Name of map unit and component soils[2]	Percent of map unit[3]	Soil suitability for--- Cropland	Soil suitability for--- Pasture	Soil potential for--- Woodland pine trees	Limitations for urban uses: Sanitary facilities[4]	Limitations for urban uses: Building sites[5]	Limitations for urban uses: Recreational areas[6]
8. Plummer-Pelham-Yonges (7 percent):		Moderate	Moderate	High	Severe	Severe	Severe.
Plummer	60	Moderate: wetness.	Moderate: wetness.	High: equipment limitations, seedling mortality.	Severe: wetness.	Severe: wetness.	Severe: wetness, too sandy.
Pelham	20	Moderate: wetness.	Moderate: wetness.	High: equipment limitations, seedling mortality.	Severe: wetness.	Severe: wetness.	Severe: wetness, too sandy.
Yonges	15	Moderately well: wetness, floods.	Well: wetness.	Very high: equipment limitations, seedling mortality.	Severe: wetness, floods, percs slowly.	Severe: wetness, floods.	Severe: wetness, floods.
Other	5						
9. Dorovan-Talquin-Chipley (22 percent):		Moderate	Well	Not suitable[7]	Severe	Severe	Severe.
Dorovan	34	Moderate: wetness.	Well: wetness.	Not suitable	Severe: floods, wetness, seepage.	Severe: floods, wetness, low strength.	Severe: floods, wetness, excess humus.
Talquin	22	Moderate: wetness, low fertility.	Well: wetness.	Moderately high: equipment limitations, seedling mortality.	Severe: wetness, seepage, too sandy.	Severe: wetness.	Severe: wetness, too sandy.
Chipley	11	Moderately well: droughty, low fertility.	Moderately well: droughty, low fertility.	High: equipment limitations. plant competition.	Severe: wetness, seepage.	Moderate: wetness.	Severe: too sandy.
Other	33						
10. Meggett (2 percent):		Low	Well	Very high	Severe	Severe	Severe.
Meggett	52	Low: wetness, floods.	Well: wetness.	Very high: equipment limitations. seedling mortality.	Severe: floods, wetness, too clayey.	Severe: wetness, floods, shrink-swell.	Severe: wetness, floods.
Other	48						

[1] The overall rating for the map unit is based on the underlined rating for the dominant soil (soil that makes up the greatest percentage of the map unit) or soils if more than one soil has the same rating. The percentage of the soil unit that the overall rating applies to can be determined from the underlined rating.

[2] The percentage in parentheses is the percentage of Leon County covered by the map units. "Others" represent minor soils in the unit.

[3] The percentage of estimates are not based on measured acreage.

[4] Ratings apply to septic tank absorption fields and trench sanitary landfills.

[5] Ratings apply to dwellings without basements, small commercial buildings, and local roads and streets.

[6] Ratings apply to camp areas, picnic areas, and playgrounds.

[7] Rating applies only to the Dorovan soils.

TABLE 4.--ACREAGE AND PROPORTIONATE EXTENT OF THE SOILS

Map symbol	Soil name	Acres	Percent
1	Albany loamy sand, 0 to 2 percent slopes	17,964	4.2
2	Albany-Urban land complex, 0 to 2 percent slopes	708	0.2
3	Alpin sand, 0 to 5 percent slopes	17,323	4.0
4	Arents, 0 to 5 percent slopes	382	0.1
5	Blanton fine sand, 0 to 5 percent slopes	19,912	4.6
6	Bonifay fine sand, 0 to 5 percent slopes	1,734	0.4
7	Chaires fine sand	2,097	0.5
8	Chipley fine sand, 0 to 2 percent slopes	11,078	2.6
9	Dorovan mucky peat	31,225	7.3
10	Dothan loamy fine sand, 2 to 5 percent slopes	5.512	1.3
11	Dothan loamy fine sand, 5 to 8 percent slopes	4,554	1.1
12	Faceville sandy loam, 2 to 5 percent slopes	7,446	1.7
13	Faceville sandy loam, 5 to 8 percent slopes	14,104	3.3
14	Faceville sandy loam, 8 to 12 percent slopes	543	0.1
15	Foxworth sand, 0 to 5 percent slopes	6,264	1.5
16	Fuquay fine sand, 0 to 5 percent slopes	5,151	1.2
17	Fuquay fine sand, 5 to 8 percent slopes	911	0.2
18	Kershaw sand, 0 to 5 percent slopes	22,665	5.3
19	Kershaw sand, 5 to 8 percent slopes	3,938	0.9
20	Kershaw-Urban land complex, 0 to 5 percent slopes	464	0.1
21	Lakeland sand, 0 to 5 percent slopes	1,144	0.3
22	Leefield loamy sand	2,753	0.6
23	Leon sand	7,290	1.7
24	Lucy fine sand, 0 to 5 percent slopes	9,690	2.3
25	Lucy fine sand, 5 to 8 percent slopes	5,887	1.4
26	Lutterloh fine sand, 0 to 5 percent slopes	5,400	1.3
27	Lynchburg fine sandy loam	2,156	0.5
28	Meggett, soils, frequently flooded	6,069	1.4
29	Norfolk loamy fine sand, 2 to 5 percent slopes	3,742	0.9
30	Norfolk loamy fine sand, 5 to 8 percent slopes	2,994	0.7
31	Norfolk loamy sand, clayey substratum, 5 to 8 percent slopes	2,571	0.6
32	Ocilla fine sand	4,407	1.0
33	Orangeburg fine sandy loam, 2 to 5 percent slopes	32,358	7.5
34	Orangeburg fine sandy loam, 5 to 8 percent slopes	38,521	9.0
35	Orangeburg fine sandy loam, 8 to 12 percent slopes	6,505	1.5
36	Orangeburg-Urban land complex, 2 to 12 percent slopes	8,330	1.9
37	Ortega sand, 0 to 5 percent slopes	21,218	4.9
38	Pamlico-Dorovan complex	3,910	0.9
39	Pelham fine sand	10,786	2.5
40	Pits	623	0.1
41	Plummer fine sand	20,463	4.8
42	Plummer mucky fine sand, depressional	1,639	0.4
43	Rutlege loamy fine sand	8,351	1.9
44	Rutlege soils, occasionally flooded	2,675	0.6
45	Sapelo fine sand	1,859	0.4
46	Surrency loamy sand	3,609	0.8
47	Talquin fine sand	21,313	5.0
48	Troup fine sand, 0 to 5 percent slopes	2,431	0.6
49	Urban land	2,277	0.5
50	Wagram loamy fine sand, 0 to 5 percent slopes	4,090	1.0
51	Wagram loamy fine sand, 5 to 8 percent slopes	1,542	0.4
52	Yonges fine sandy loam	5,529	1.3
	Water	2,801	0.7
	Total	428,928	100.0

TABLE 5.--YIELDS PER ACRE OF CROPS AND PASTURE

[Yields are those that can be expected under a high level of management. Absence of a yield indicates that the soil is not suited to the crop or the crop generally is not grown on the soil]

Map symbol and soil name	Corn	Peanuts	Soybeans	Tobacco	Watermelons	Bahiagrass	Improved bermudagrass
	Bu	Lb	Bu	Lb	Ton	AUM*	AUM*
1 Albany	65	2,200	25	2,100	---	6.5	7.0
2 Albany-Urban land	---	---	---	---	---	---	---
3 Alpin	---	2,000	---	1,500	6.6	7.0	8.0
4.** Arents							
5 Blanton	60	2,200	25	2,000	12	6.5	8.0
6 Bonifay	60	2,200	25	2,100	---	7.0	7.5
7 Chaires	50	---	20	---	10	9.0	8.0
8 Chipley	70	2,200	25	2,000	10	7.5	8.0
9 Dorovan	---	---	---	---	---	---	---
10 Dothan	90	3,600	35	2,300	---	9.0	9.5
11 Dothan	80	3,000	30	2,100	---	8.0	9.0
12 Faceville	105	3,400	40	2,300	---	7.0	10.0
13 Faceville	80	3,000	30	2,100	---	6.0	9.5
14 Faceville	70	2,700	25	1,700	---	5.0	7.0
15 Foxworth	---	---	---	---	5	7.5	---
16 Fuquay	80	2,900	30	2,400	---	---	---
17 Fuquay	75	2,600	25	2,200	---	---	---
18, 19 Kershaw	---	---	---	---	---	3.5	3.5
20 Kershaw-Urban land	---	---	---	---	---	---	---
21 Lakeland	55	2,000	20	1,700	10	7.0	7.0

See footnotes at end of table.

TABLE 5.--YIELDS PER ACRE OF CROPS AND PASTURE--Continued

Map symbol and soil name	Corn	Peanuts	Soybeans	Tobacco	Watermelons	Bahiagrass	Improved bermuda-grass
	Bu	Lb	Bu	Lb	Ton	AUM*	AUM*
22 Leefield	85	3,000	30	2,300	12	8.0	8.5
23 Leon	50	---	---	---	---	7.5	8.0
24 Lucy	80	3,000	33	2,400	12	8.5	8.0
25 Lucy	70	2,500	25	---	11	8.5	7.5
26 Lutterloh	75	1,700	20	2,100	---	6.5	7.0
27 Lynchburg	90	---	35	2,500	12	8.0	9.5
28** Meggett	95	---	35	---	---	8.5	10.0
29 Norfolk	90	3,500	35	2,900	12	8.0	9.5
30 Norfolk	80	3,300	30	2,700	10	7.5	9.5
31 Norfolk	80	3,300	30	2,700	10	7.5	9.5
32 Ocilla	70	2,700	35	2,600	12	7.5	8.5
33 Orangeburg	90	3,500	40	2,400	12	8.5	10.5
34 Orangeburg	85	3,200	35	2,200	10	8.0	10.0
35 Orangeburg	80	2,800	30	1,800	---	7.0	9.0
36 Orangeburg-Urban land	---	---	---	---	---	---	---
37 Ortega	---	---	---	---	10	6.0	7.5
38 Pamlico-Dorovan	---	---	---	---	---	---	---
39 Pelham	75	---	30	---	---	8.0	9.0
40.** Pits							
41 Plummer	---	---	---	---	---	5.0	6.0
42 Plummer	---	---	---	---	---	---	---

See footnotes at end of table.

TABLE 5.--YIELDS PER ACRE OF CROPS AND PASTURE--Continued

Map symbol and soil name	Corn	Peanuts	Soybeans	Tobacco	Watermelons	Bahiagrass	Improved bermuda-grass
	Bu	Lb	Bu	Lb	Ton	AUM*	AUM*
43----------------------- Rutlege	80	---	30	---	---	8.5	---
44**--------------------- Rutlege	80	---	30	---	---	8.5	---
45----------------------- Sapelo	50	---	---	---	---	7.5	---
46----------------------- Surrency	60	---	---	---	---	9.0	---
47----------------------- Talquin	---	---	---	---	---	7.5	---
48----------------------- Troup	60	2,200	25	2,100	12	7.0	7.5
49.** Urban land							
50----------------------- Wagram	75	2,900	25	2,400	12	8.0	9.0
51----------------------- Wagram	70	2,500	20	2,100	11	8.0	9.0
52----------------------- Yonges	110	---	40	---	---	12	---

* Animal-unit-month: The amount of forage or feed required to feed one animal unit (one cow, one horse, one mule, five sheep, or five goats) for 30 days.

** See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 6.--CAPABILITY CLASSES AND SUBCLASSES

[Miscellaneous areas are excluded. Absence of an entry indicates no acreage]

Class	Total acreage	Major management concerns (Subclass)			
		Erosion (e)	Wetness (w)	Soil problem (s)	Climate (c)
		Acres	Acres	Acres	Acres
I	---	---	---	---	---
II	72,918	49,078	4,909	18,931	---
III	178,981	63,655	45,260	70,066	---
IV	124,840	7,048	98,943	18,849	---
V	6,069	---	6,069	---	---
VI	2,675	---	2,675	---	---
VII	28,242	---	1,639	26,603	---
VIII	---	---	---	---	---

TABLE 7.--WOODLAND MANAGEMENT AND PRODUCTIVITY

[Only the soils suitable for production of commercial trees are listed. Absence of an entry indicates that information was not available]

Map symbol and soil name	Ordination symbol	Management concerns: Erosion hazard	Management concerns: Equipment limitation	Management concerns: Seedling mortality	Management concerns: Plant competition	Potential productivity: Common trees	Potential productivity: Site index	Trees to plant
1 Albany	3w	Slight	Moderate	Moderate	Moderate	Loblolly pine	80	Loblolly pine, slash pine.
						Slash pine	80	
						Longleaf pine	65	
2:[1] Albany	3w	Slight	Moderate	Moderate	Moderate	Loblolly pine	80	Loblolly pine, slash pine.
						Slash pine	80	
						Longleaf pine	65	
Urban land.								
3 Alpin	3s	Slight	Moderate	Moderate	Slight	Loblolly pine	80	Slash pine, loblolly pine.
						Slash pine	80	
						Longleaf pine	75	
5 Blanton	3s	Slight	Moderate	Moderate	Moderate	Slash pine	80	Slash pine, longleaf pine.
						Loblolly pine	80	
						Longleaf pine	70	
6 Bonifay	3s	Slight	Moderate	Moderate	Moderate	Slash pine	80	Slash pine, loblolly pine.
						Longleaf pine	65	
						Loblolly pine	80	
7 Chaires	3w	Slight	Moderate	Moderate	Moderate	Slash pine	80	Slash pine.
						Longleaf pine	65	
						Water oak	---	
						Laurel oak	---	
8 Chipley	2s	Slight	Moderate	Slight	Moderate	Slash pine	90	Slash pine, loblolly pine.
						Loblolly pine	90	
						Longleaf pine	80	
9 Dorovan	4w	Slight	Severe	Severe	Moderate	Loblolly pine[2]	70	Loblolly pine[3], Slash pine[3].
						Slash pine[2]	70	
						Sweetbay	---	
10, 11 Dothan	2o	Slight	Slight	Slight	Moderate	Slash pine	90	Slash pine, loblolly pine.
						Longleaf pine	75	
						Loblolly pine	90	
12, 13, 14 Faceville	3o	Slight	Slight	Slight	Moderate	Loblolly pine	80	Loblolly pine, slash pine.
						Slash pine	80	
						Longleaf pine	65	
15 Foxworth	3s	Slight	Moderate	Moderate	Moderate	Slash pine	80	Slash pine, loblolly pine.
						Longleaf pine	65	
						Loblolly pine	80	
16, 17 Fuquay	3s	Slight	Moderate	Moderate	Moderate	Loblolly pine	80	Slash pine, loblolly pine.
						Slash pine	80	
						Longleaf pine	65	
18, 19 Kershaw	5s	Slight	Moderate	Severe	Slight	Slash pine	65	Sand pine, longleaf pine.
						Longleaf pine	55	
20:[1] Kershaw	5s	Slight	Moderate	Severe	Slight	Slash pine	65	Sand pine, longleaf pine.
						Longleaf pine	55	

See footnotes at end of table.

TABLE 7.--WOODLAND MANAGEMENT AND PRODUCTIVITY--Continued

Map symbol and soil name	Ordination symbol	Management concerns: Erosion hazard	Management concerns: Equipment limitation	Management concerns: Seedling mortality	Management concerns: Plant competition	Potential productivity: Common trees	Potential productivity: Site index	Trees to plant
20:[1] Urban land.								
21 Lakeland	3s	Slight	Moderate	Moderate	Slight	Slash pine Loblolly pine Longleaf pine	80 80 65	Slash pine, longleaf pine.
22 Leefield	3w	Slight	Moderate	Moderate	Moderate	Loblolly pine Slash pine Longleaf pine	80 80 70	Loblolly pine, slash pine.
23 Leon	4w	Slight	Moderate	Moderate	Moderate	Loblolly pine Slash pine Longleaf pine	70 70 65	Slash pine.
24, 25 Lucy	3s	Slight	Moderate	Moderate	Slight	Slash pine Longleaf pine Loblolly pine	80 70 80	Slash pine, longleaf pine, loblolly pine.
26 Lutterloh	3w	Slight	Moderate	Moderate	Moderate	Slash pine Loblolly pine Longleaf pine	80 80 65	Slash pine, loblolly pine.
27 Lynchburg	2w	Slight	Moderate	Slight	Moderate	Slash pine Loblolly pine Longleaf pine Yellow-poplar Sweetgum Southern red oak White oak Blackgum	90 90 70 90 90 --- --- ---	Slash pine, loblolly pine.
28[1] Meggett	1w	Slight	Severe[4]	Severe[4]	Severe	Slash pine[2] Loblolly pine[2] Sweetgum Pond pine	100 100 100 75	Slash pine[3], loblolly pine[3].
29, 30 Norfolk	2o	Slight	Slight	Slight	Moderate	Loblolly pine Longleaf pine Slash pine	90 70 90	Slash pine, loblolly pine.
31 Norfolk	2o	Slight	Slight	Slight	Moderate	Loblolly pine Longleaf pine Slash pine	90 75 90	Slash pine, loblolly pine.
32 Ocilla	3w	Slight	Moderate	Moderate	Moderate	Loblolly pine Slash pine Longleaf pine	80 80 70	Loblolly pine, slash pine.
33, 34, 35 Orangeburg	2o	Slight	Slight	Moderate	Moderate	Loblolly pine Slash pine Longleaf pine Shortleaf pine	90 90 75 80	Slash pine, loblolly pine.
36:[1] Orangeburg	2o	Slight	Slight	Slight	Moderate	Loblolly pine Slash pine Shortleaf pine Longleaf pine	90 90 80 75	Slash pine, loblolly pine.
Urban land.								

See footnotes at end of table.

TABLE 7.--WOODLAND MANAGEMENT AND PRODUCTIVITY--Continued

Map symbol and soil name	Ordination symbol	Management concerns: Erosion hazard	Management concerns: Equipment limitation	Management concerns: Seedling mortality	Management concerns: Plant competition	Potential productivity: Common trees	Potential productivity: Site index	Trees to plant
37----------------- Ortega	3s	Slight	Moderate	Moderate	Moderate	Slash pine-----------	80	Slash pine. longleaf pine.
						Longleaf pine--------	75	
38:[1]								
Pamlico------------	4w	Slight	Severe	Severe	Severe	Loblolly pine[2]-------	70	Slash pine[3], loblolly pine[3].
						Slash pine-----------	70	
						Pond pine------------	55	
						Baldcypress----------	---	
						Water tupelo---------	---	
Dorovan------------	4w	Slight	Severe	Severe	Severe	Loblolly pine[2]-------	70	Loblolly pine[3], Slash pine.[3]
						Slash pine[2]-----------	70	
						Sweetbay-------------	---	
						Water tupelo---------		
39----------------- Pelham	2w	Slight	Severe[4]	Severe[4]	Moderate	Slash pine[2]-----------	90	Slash pine[3] pine.
						Loblolly pine[2]-------	90	
						Longleaf pine[2]-------	75	
						Sweetgum-------------	80	
						Water oak------------	80	
41, 42------------- Plummer	2w	Slight	Severe[4]	Severe[4]	Moderate	Slash pine[2]-----------	90	Slash pine,[3] Loblolly pine.[3]
						Loblolly pine[2]-------	90	
						Longleaf pine[2]-------	70	
43, 44[1]------------ Rutlege	2w	Slight	Severe	Severe	Severe	Loblolly pine--------	90	Loblolly pine, slash pine.
						Sweetgum-------------	90	
						Slash pine-----------	90	
45----------------- Sapelo	3w	Slight	Moderate	Moderate	Moderate	Loblolly pine--------	80	Loblolly pine, slash pine.
						Slash pine-----------	80	
						Longleaf pine--------	65	
46----------------- Surrency	2w	Slight	Severe	Severe	Severe	Loblolly pine--------	95	Loblolly pine, slash pine, sweetgum.
						Slash pine-----------	90	
						Sweetgum-------------	90	
						Blackgum-------------	---	
						Water oak------------	---	
						Baldcypress----------	---	
						Water tupelo---------	---	
47----------------- Talquin	3w	Slight	Moderate	Moderate	Moderate	Slash pine-----------	80	Slash pine.
						Longleaf pine--------	65	
						Water oak------------	---	
48----------------- Troup	3s	Slight	Moderate	Moderate	Slight	Loblolly pine--------	80	Loblolly pine, longleaf pine, slash pine.
						Slash pine-----------	80	
						Longleaf pine--------	65	
50, 51------------- Wagram	3s	Slight	Moderate	Moderate	Slight	Loblolly pine--------	80	Loblolly pine, slash pine, longleaf pine.
						Slash pine-----------	80	
						Longleaf pine--------	65	
52----------------- Yonges	1w	Slight	Severe[4]	Severe[4]	Moderate	Loblolly pine[2]-------	105	Loblolly pine[3], slash pine[3], sweetgum[3], American sycamore[3].
						Slash pine[2]-----------	100	
						Sweetgum[2]-------------	100	
						Water oak[2]------------	100	

[1] See description of the map unit for composition and behavior characteristics of the map unit.
[2] Potential productivity attainable only on areas with adequate drainage.
[3] Tree planting is feasible only on areas with adequate surface drainage.
[4] Equipment restrictions and seedling mortality are moderate on areas with adequate surface drainage.

TABLE 8.--RECREATIONAL DEVELOPMENT

[Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "moderate," and "severe." Absence of an entry indicates that the soil was not rated]

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails
1 Albany	Severe: wetness.	Moderate: wetness.	Severe: wetness.	Moderate: wetness.
2:*				
Albany	Severe: wetness.	Moderate: wetness.	Severe: wetness.	Moderate: wetness.
Urban land.				
3 Alpin	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.
4.* Arents				
5 Blanton	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.
6 Bonifay	Severe: too sandy.	Severe: too sandy.	Severe: too sandy, slope.	Severe: too sandy.
7 Chaires	Severe: wetness, too sandy.	Severe: wetness, too sandy.	Severe: too sandy, wetness.	Severe: wetness, too sandy.
8 Chipley	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.
9 Dorovan	Severe: floods, wetness.	Severe: wetness, excess humus.	Severe: wetness, floods, excess humus.	Severe: wetness, excess humus.
10 Dothan	Moderate: percs slowly.	Moderate: percs slowly.	Moderate: slope, percs slowly.	Slight.
11 Dothan	Moderate: percs slowly.	Moderate: percs slowly.	Severe: slope.	Slight.
12 Faceville	Slight	Slight	Moderate: slope.	Slight.
13 Faceville	Slight	Slight	Severe: slope.	Slight.
14 Faceville	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight.
15 Foxworth	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.
16 Fuquay	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.

See footnote at end of table.

TABLE 8.--RECREATIONAL DEVELOPMENT--Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails
17 Fuquay	Severe: too sandy.	Severe: too sandy.	Severe: slope, too sandy.	Severe: too sandy.
18 Kershaw	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.
19 Kershaw	Severe: too sandy.	Severe: too sandy.	Severe: slope, too sandy.	Severe: too sandy.
20:*				
Kershaw	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.
Urban land.				
21 Lakeland	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.
22 Leefield	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Moderate: wetness.	Moderate: wetness.
23 Leon	Severe: wetness, too sandy.	Severe: wetness, too sandy.	Severe: too sandy, wetness.	Severe: wetness, too sandy.
24 Lucy	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.
25 Lucy	Severe: too sandy.	Severe: too sandy.	Severe: slope, too sandy.	Severe: too sandy.
26 Lutterloh	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.
27 Lynchburg	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
28* Meggett	Severe: floods, wetness.	Severe: wetness.	Severe: floods, wetness.	Severe: wetness.
29 Norfolk	Slight	Moderate: too sandy.	Moderate: slope, too sandy.	Moderate: too sandy.
30 Norfolk	Slight	Moderate: too sandy.	Severe: slope.	Moderate: too sandy.
31 Norfolk	Slight	Slight	Severe: slope.	Slight.
32 Ocilla	Severe: wetness, too sandy.	Severe: too sandy.	Severe: too sandy, wetness.	Severe: too sandy.
33 Orangeburg	Slight	Slight	Moderate: slope.	Slight.
34 Orangeburg	Slight	Slight	Severe: slope.	Slight.
35 Orangeburg	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight.

See footnote at end of table.

TABLE 8.--RECREATIONAL DEVELOPMENT--Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails
36:*				
Orangeburg	Slight	Slight	Severe: slope.	Slight.
Urban land.				
37 Ortega	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.
38:*				
Pamlico	Severe: wetness, floods.	Severe: wetness, floods.	Severe: wetness, floods.	Severe: wetness, floods.
Dorovan	Severe: floods, wetness.	Severe: wetness, excess humus.	Severe: wetness, floods, excess humus.	Severe: wetness, excess humus.
39 Pelham	Severe: wetness, too sandy.	Severe: wetness, too sandy.	Severe: wetness, too sandy.	Severe: wetness, too sandy.
40.* Pits				
41 Plummer	Severe: wetness, too sandy.	Severe: wetness, too sandy.	Severe: too sandy, wetness.	Severe: wetness, too sandy.
42 Plummer	Severe: ponding, too sandy.	Severe: ponding, too sandy.	Severe: ponding, too sandy.	Severe: ponding, too sandy.
43, 44* Rutlege	Severe: wetness, floods.	Severe: wetness.	Severe: wetness, floods.	Severe: wetness.
45 Sapelo	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.
46 Surrency	Severe: floods, wetness.	Severe: wetness.	Severe: wetness, floods.	Severe: wetness.
47 Talquin	Severe: wetness, too sandy.	Severe: wetness, too sandy.	Severe: too sandy, wetness.	Severe: wetness, too sandy.
48 Troup	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.
49.* Urban land				
50 Wagram	Moderate: too sandy.	Moderate: too sandy.	Moderate: slope, too sandy.	Moderate: too sandy.
51 Wagram	Moderate: too sandy.	Moderate: too sandy.	Severe: slope.	Moderate: too sandy.
52 Yonges	Severe: wetness, floods.	Severe: wetness.	Severe: wetness, floods.	Severe: wetness.

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 9.--WILDLIFE HABITAT POTENTIALS

[See text for definitions of "good," "fair," "poor," and "very poor." Absence of an entry indicates that the soil was not rated]

Map symbol and soil name	Potential for habitat elements							Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
1----- Albany	Fair	Fair	Fair	Fair	Fair	Fair	Poor	Fair	Fair	Poor.
2:*										
Albany-----	Fair	Fair	Fair	Fair	Fair	Fair	Poor	Fair	Fair	Poor.
Urban land.										
3----- Alpin	Poor	Fair	Fair	Poor	Fair	Very poor.	Very poor.	Fair	Fair	Very poor.
4.* Arents										
5----- Blanton	Poor	Fair	Fair	Poor	Fair	Very poor.	Very poor.	Fair	Fair	Very poor.
6----- Bonifay	Poor	Fair	Fair	Poor	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.
7----- Chaires	Poor	Fair	Fair	Poor	Fair	Fair	Fair	Fair	Fair	Fair.
8----- Chipley	Poor	Fair	Fair	Fair	Fair	Very poor.	Very poor.	Fair	Fair	Very poor.
9----- Dorovan	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Good	Good	Very poor.	Very poor.	Good.
10, 11----- Dothan	Good	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
12----- Faceville	Good	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
13, 14----- Faceville	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
15----- Foxworth	Poor	Poor	Fair	Fair	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.
16----- Fuquay	Fair	Fair	Good	Fair	Fair	Poor	Very poor.	Good	Fair	Very poor.
17----- Fuquay	Poor	Fair	Good	Fair	Fair	Poor	Very poor.	Good	Fair	Very poor.
18, 19----- Kershaw	Very poor.	Poor	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Poor	Very poor.	Very poor.
20:*										
Kershaw-----	Very poor.	Poor	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Poor	Very poor.	Very poor.
Urban land.										

See footnote at end of table.

TABLE 9.--WILDLIFE HABITAT POTENTIALS--Continued

Map symbol and soil name	Potential for habitat elements: Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Potential as habitat for--: Openland wildlife	Woodland wildlife	Wetland wildlife
21 Lakeland	Poor	Fair	Fair	Poor	Fair	Very poor.	Very poor.	Fair	Fair	Very poor.
22 Leefield	Fair	Fair	Good	Fair	Fair	Fair	Fair	Fair	Fair	Fair.
23 Leon	Poor	Fair	Good	Poor	Fair	Fair	Poor	Fair	Fair	Poor.
24, 25 Lucy	Poor	Fair	Good	Good	Good	Poor	Very poor.	Fair	Good	Very poor.
26 Lutterloh	Fair	Fair	Fair	Fair	Fair	Fair	Poor	Fair	Fair	Poor.
27 Lynchburg	Fair	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair.
28* Meggett	Good	Good	Good	Fair	Good	Good	Good	Good	Good	Good.
29 Norfolk	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
30 Norfolk	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
31 Norfolk	Good	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
32 Ocilla	Fair	Fair	Good	Fair	Good	Fair	Fair	Fair	Good	Fair.
33 Orangeburg	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
34, 35 Orangeburg	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
36:* Orangeburg	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
Urban land.										
37 Ortega	Poor	Poor	Fair	Poor	Poor	Very poor.	Very poor.	Poor	Poor	Very poor.
38:* Pamlico	Poor	Good	Good	Good	Good	Poor	Good	Good	Good	Fair.
Dorovan	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Good	Good	Very poor.	Very poor.	Good.
39 Pelham	Poor	Fair	Fair	Fair	Fair	Fair	Fair	Fair	Fair	Fair.
40.* Pits										
41 Plummer	Poor	Fair	Fair	Fair	Fair	Fair	Fair	Fair	Fair	Fair
42 Plummer	Very poor.	Poor	Poor	Poor	Poor	Fair	Good	Poor	Poor	Good

See footnote at end of table.

TABLE 9.--WILDLIFE HABITAT POTENTIALS--Continued

Map symbol and soil name	Potential for habitat elements							Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
43, 44*------------- Rutlege	Very poor.	Poor	Poor	Poor	Poor	Fair	Good	Poor	Poor	Fair.
45----------------- Sapelo	Poor	Fair	Fair	Poor	Fair	Fair	Fair	Fair	Fair	Fair.
46----------------- Surrency	Poor	Poor	Poor	Poor	Poor	Fair	Good	Poor	Poor	Fair.
47----------------- Talquin	Poor	Fair	Good	Poor	Fair	Fair	Poor	Fair	Fair	Poor.
48----------------- Troup	Poor	Fair	Fair	Poor	Poor	Very poor.	Very poor.	Fair	Poor	Very poor.
49.* Urban land										
50----------------- Wagram	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
51----------------- Wagram	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
52----------------- Yonges	Fair	Fair	Fair	Good	Good	Fair	Fair	Fair	Good	Fair.

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 10.--BUILDING SITE DEVELOPMENT

[Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "moderate," and "severe." Absence of an entry indicates that the soil was not rated]

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets
1 Albany	Severe: cutbanks cave, wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Moderate: wetness.
2:*					
Albany	Severe: cutbanks cave, wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Moderate: wetness.
Urban land.					
3 Alpin	Severe: cutbanks cave.	Slight	Slight	Slight	Slight.
4.* Arents					
5 Blanton	Severe: cutbanks cave.	Slight	Moderate: wetness.	Slight	Slight.
6 Bonifay	Severe: cutbanks cave.	Slight	Slight	Slight	Slight.
7 Chaires	Severe: cutbanks cave, wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
8 Chipley	Severe: cutbanks cave, wetness.	Moderate: wetness.	Severe: wetness.	Moderate: wetness.	Moderate: wetness.
9 Dorovan	Severe: excess humus, wetness, floods.	Severe: wetness, floods, low strength.	Severe: wetness, floods, low strength.	Severe: wetness, floods, low strength.	Severe: wetness, floods, low strength.
10 Dothan	Moderate: wetness.	Slight	Moderate: wetness.	Slight	Slight.
11 Dothan	Moderate: wetness.	Slight	Moderate: wetness.	Moderate: slope.	Slight.
12 Faceville	Moderate: too clayey.	Slight	Slight	Slight	Moderate: low strength.
13 Faceville	Moderate: too clayey.	Slight	Slight	Moderate: slope.	Moderate: low strength.
14 Faceville	Moderate: too clayey, slope.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: low strength, slope.
15 Foxworth	Severe: cutbanks cave.	Slight	Moderate: wetness.	Slight	Slight.
16 Fuquay	Slight	Slight	Slight	Slight	Slight.
17 Fuquay	Slight	Slight	Slight	Moderate: slope.	Slight.
18 Kershaw	Severe: cutbanks cave.	Slight	Slight	Slight	Slight.

See footnote at end of table.

TABLE 10.--BUILDING SITE DEVELOPMENT--Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets
19----------------- Kershaw	Severe: cutbanks cave.	Slight-----------	Slight-----------	Moderate: slope.	Slight.
20:*					
Kershaw----------	Severe: cutbanks cave.	Slight-----------	Slight-----------	Slight------------	Slight.
Urban land.					
21----------------- Lakeland	Severe: cutbanks cave.	Slight-----------	Slight-----------	Slight------------	Slight.
22----------------- Leefield	Severe: cutbanks cave, wetness.	Moderate: wetness.	Severe: wetness.	Moderate: wetness.	Moderate: wetness.
23----------------- Leon	Severe: cutbanks cave, wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
24----------------- Lucy	Severe: cutbanks cave.	Slight-----------	Slight-----------	Slight------------	Slight.
25----------------- Lucy	Severe: cutbanks cave.	Slight-----------	Slight-----------	Moderate: slope.	Slight.
26----------------- Lutterloh	Severe: cutbanks cave, wetness.	Moderate: wetness.	Severe: wetness.	Moderate: wetness.	Moderate: wetness.
27----------------- Lynchburg	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
28*---------------- Meggett	Severe: wetness.	Severe: floods, wetness, shrink-swell.	Severe: floods, wetness, shrink-swell.	Severe: floods, wetness, shrink-swell.	Severe: low strength, wetness, floods.
29----------------- Norfolk	Moderate: wetness.	Slight-----------	Moderate: wetness.	Moderate: wetness.	Slight.
30----------------- Norfolk	Moderate: wetness.	Slight-----------	Moderate: wetness.	Moderate: slope.	Slight.
31----------------- Norfolk	Slight-----------	Moderate: shrink-swell.	Severe: shrink-swell.	Moderate: shrink-swell, slope.	Moderate: low strength, shrink-swell.
32----------------- Ocilla	Severe: cutbanks cave, wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Moderate: wetness.
33----------------- Orangeburg	Slight-----------	Slight-----------	Slight-----------	Slight------------	Slight.
34----------------- Orangeburg	Slight-----------	Slight-----------	Slight-----------	Moderate: slope.	Slight.
35----------------- Orangeburg	Moderate: slope.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: slope.
36:*					
Orangeburg-------	Slight-----------	Slight-----------	Slight-----------	Moderate: slope.	Slight.
Urban land.					

See footnote at end of table.

TABLE 10.--BUILDING SITE DEVELOPMENT--Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets
37 Ortega	Severe: cutbanks cave.	Slight	Moderate: wetness.	Slight	Slight.
38:*					
Pamlico	Severe: floods, wetness.	Severe: wetness, floods, low strength.	Severe: wetness, floods, low strength.	Severe: wetness, floods, low strength.	Severe: wetness, floods, low strength.
Dorovan	Severe: excess humus, wetness, floods.	Severe: wetness, floods, low strength.	Severe: wetness, floods, low strength.	Severe: wetness, floods, low strength.	Severe: wetness, floods, low strength.
39 Pelham	Severe: cutbanks cave, wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
40.* Pits					
41 Plummer	Severe: cutbanks cave, wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
42 Plummer	Severe: cutbanks cave, ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding.
43, 44* Rutlege	Severe: wetness, cutbanks cave, floods.	Severe: wetness, floods.	Severe: wetness, floods.	Severe: wetness, floods.	Severe: wetness, floods.
45 Sapelo	Severe: cutbanks cave, wetness.	Moderate: wetness.	Severe: wetness.	Moderate: wetness.	Moderate: wetness.
46 Surrency	Severe: cutbanks cave, ponding.	Severe: floods, ponding.	Severe: floods, ponding.	Severe: floods, ponding.	Severe: ponding, floods.
47 Talquin	Severe: cutbanks cave, wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
48 Troup	Severe: cutbanks cave.	Slight	Slight	Slight	Slight.
49.* Urban land					
50 Wagram	Slight	Slight	Slight	Slight	Slight.
51 Wagram	Slight	Slight	Slight	Moderate: slope.	Slight.
52 Yonges	Severe: wetness, floods.	Severe: wetness, floods.	Severe: wetness, floods.	Severe: wetness, floods.	Severe: wetness, floods, low strength.

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 11.--SANITARY FACILITIES

[Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "moderate," "good," "fair," and other terms. Absence of an entry indicates that the soil was not rated]

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
1-------------------- Albany	Severe: wetness.	Severe: seepage, wetness.	Severe: wetness.	Severe: seepage, wetness.	Poor: wetness.
2:*					
Albany--------------	Severe: wetness.	Severe: seepage, wetness.	Severe: wetness.	Severe: seepage, wetness.	Poor: wetness.
Urban land.					
3-------------------- Alpin	Severe: poor filter.	Severe: seepage.	Severe: seepage, too sandy.	Severe: seepage.	Poor: too sandy, seepage.
4.* Arents					
5-------------------- Blanton	Moderate: wetness.	Severe: seepage.	Severe: too sandy.	Severe: seepage.	Poor: too sandy, seepage.
6-------------------- Bonifay	Moderate: wetness, percs slowly.	Severe: seepage.	Severe: too sandy.	Severe: seepage.	Poor: too sandy, seepage.
7-------------------- Chaires	Severe: wetness, percs slowly.	Severe: seepage.	Severe: wetness, too sandy.	Severe: seepage, wetness.	Poor: seepage, too sandy, wetness.
8-------------------- Chipley	Severe: wetness.	Severe: seepage, wetness.	Severe: seepage, wetness.	Severe: seepage, wetness.	Poor: too sandy, seepage.
9-------------------- Dorovan	Severe: floods, wetness.	Severe: floods, excess humus, wetness.	Severe: floods, seepage, wetness.	Severe: floods, wetness.	Poor: wetness, excess humus.
10, 11--------------- Dothan	Severe: wetness, percs slowly.	Severe: seepage.	Moderate: wetness, too clayey.	Severe: seepage.	Fair: too clayey.
12, 13--------------- Faceville	Moderate: percs slowly.	Moderate: seepage, slope.	Moderate: too clayey.	Slight------------	Fair: too clayey.
14------------------- Faceville	Moderate: percs slowly, slope.	Severe: slope.	Moderate: slope, too clayey.	Moderate: slope.	Fair: too clayey, slope.
15------------------- Foxworth	Moderate: wetness, poor filter.	Severe: seepage.	Severe: seepage, wetness, too sandy.	Severe: seepage.	Poor: seepage, too sandy.
16, 17--------------- Fuquay	Moderate: percs slowly.	Moderate: slope.	Slight------------	Slight------------	Good.

See footnote at end of table.

TABLE 11.--SANITARY FACILITIES--Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
18, 19**: Kershaw	Slight	Severe: seepage.	Severe: too sandy.	Severe: seepage.	Poor: seepage, too sandy.
20:* **: Kershaw	Slight	Severe: seepage.	Severe: too sandy.	Severe: seepage.	Poor: seepage, too sandy.
Urban land.					
21**: Lakeland	Slight	Severe: seepage.	Severe: seepage, too sandy.	Severe: seepage.	Poor: too sandy, seepage.
22: Leefield	Severe: wetness, percs slowly.	Severe: seepage, wetness.	Severe: wetness.	Severe: seepage, wetness.	Fair: wetness.
23: Leon	Severe: wetness.	Severe: seepage, wetness.	Severe: seepage, wetness, too sandy.	Severe: seepage, wetness.	Poor: seepage, too sandy, wetness.
24, 25: Lucy	Moderate: percs slowly.	Severe: seepage.	Slight	Severe: seepage.	Good.
26: Lutterloh	Severe: wetness.	Severe: seepage, wetness.	Severe: wetness, too sandy.	Severe: seepage, wetness.	Poor: seepage, too sandy.
27: Lynchburg	Severe: wetness.	Severe: seepage, wetness.	Severe: wetness.	Severe: seepage, wetness.	Poor: wetness.
28*: Meggett	Severe: floods, wetness, percs slowly.	Severe: floods, wetness.	Severe: floods, wetness, too clayey.	Severe: floods, wetness.	Poor: too clayey, hard to pack, wetness.
29, 30: Norfolk	Moderate: wetness.	Moderate: slope, seepage.	Moderate: wetness.	Moderate: wetness.	Good.
31: Norfolk	Moderate: percs slowly.	Moderate: seepage, slope.	Slight	Slight	Good.
32: Ocilla	Severe: wetness.	Severe: seepage, wetness.	Severe: wetness.	Severe: seepage, wetness.	Poor: wetness.
33, 34: Orangeburg	Moderate: percs slowly.	Moderate: seepage, slope.	Slight	Severe: seepage.	Good.
35: Orangeburg	Moderate: percs slowly, slope.	Severe: slope.	Moderate: slope.	Severe: seepage.	Fair: slope.
36:*: Orangeburg	Moderate: percs slowly.	Severe: slope.	Slight	Severe: seepage.	Good.
Urban land.					
37: Ortega	Severe: poor filter.	Severe: seepage.	Severe: seepage, wetness, too sandy.	Severe: seepage.	Poor: too sandy.

See footnotes at end of table.

TABLE 11.--SANITARY FACILITIES--Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
38:*					
Pamlico	Severe: wetness, floods.	Severe: wetness, floods, excess humus.	Severe: wetness, floods.	Severe: wetness, floods.	Poor: wetness, excess humus, hard to pack.
Dorovan	Severe: floods, wetness.	Severe: floods, excess humus, wetness.	Severe: floods, seepage, wetness.	Severe: floods, wetness.	Poor: wetness, excess humus.
39 Pelham	Severe: wetness.	Severe: seepage, wetness.	Severe: wetness.	Severe: seepage, wetness.	Poor: wetness.
40.* Pits					
41 Plummer	Severe: wetness.	Severe: wetness, seepage.	Severe: wetness.	Severe: seepage, wetness.	Poor: too sandy, wetness.
42 Plummer	Severe: ponding.	Severe: ponding, seepage.	Severe: ponding.	Severe: ponding. seepage.	Poor: too sandy, ponding.
43, 44* Rutlege	Severe: wetness, floods.	Severe: seepage, wetness, floods.	Severe: wetness, seepage, floods.	Severe: wetness, seepage, floods.	Poor: too sandy, wetness.
45 Sapelo	Severe: wetness.	Severe: seepage, wetness.	Severe: wetness, too sandy.	Severe: seepage, wetness.	Poor: seepage, too sandy.
46 Surrency	Severe: floods, ponding.	Severe: seepage, floods, ponding.	Severe: floods, ponding, too sandy.	Severe: floods, seepage, ponding.	Poor: too sandy, ponding.
47 Talquin	Severe: wetness.	Severe: seepage, wetness.	Severe: seepage, wetness, too sandy.	Severe: seepage, wetness.	Poor: too sandy, wetness, seepage.
48 Troup	Slight	Severe: seepage.	Severe: too sandy.	Severe: seepage.	Poor: too sandy.
49.* Urban land					
50, 51 Wagram	Slight	Severe: seepage.	Slight	Slight	Fair: too sandy.
52 Yonges	Severe: wetness, floods, percs slowly.	Severe: wetness, floods, seepage.	Severe: wetness, floods.	Severe: wetness, floods.	Poor: wetness.

* See description of the map unit for composition and behavior characteristics of the map unit.
** A hazard of ground water contamination may occur in areas where there are many septic tank aborption fields.

TABLE 12.--CONSTRUCTION MATERIALS

[Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "good," "fair," "poor," "probable," and "improbable." Absence of an entry indicates that the soil was not rated]

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
1 Albany	Fair: wetness.	Improbable: excess fines.	Improbable: excess fines.	Fair: too sandy.
2:*				
Albany	Fair: wetness.	Improbable: excess fines.	Improbable: excess fines.	Fair: too sandy.
Urban land.				
3 Alpin	Good	Probable	Improbable: too sandy.	Poor: too sandy.
4.* Arents				
5 Blanton	Good	Probable	Improbable: too sandy.	Poor: too sandy.
6 Bonifay	Good	Probable	Improbable: too sandy.	Poor: too sandy.
7 Chaires	Poor: wetness.	Improbable: thin layer.	Improbable: too sandy.	Poor: too sandy, wetness.
8 Chipley	Fair: wetness.	Probable	Improbable: too sandy.	Poor: too sandy.
9 Dorovan	Poor: low strength, wetness.	Probable	Improbable: too sandy.	Poor: excess humus, wetness.
10, 11 Dothan	Good	Improbable: excess fines.	Improbable: excess fines.	Fair: too sandy, small stones, thin layer.
12, 13, 14 Faceville	Fair: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer.
15 Foxworth	Good	Probable	Improbable: too sandy.	Poor: too sandy.
16, 17 Fuquay	Good	Probable	Improbable: too sandy.	Poor: too sandy.
18, 19 Kershaw	Good	Probable	Improbable: too sandy.	Poor: too sandy.
20:*				
Kershaw	Good	Probable	Improbable: too sandy.	Poor: too sandy.
Urban land.				
21 Lakeland	Good	Probable	Improbable	Poor: too sandy.

See footnote at end of table.

TABLE 12.--CONSTRUCTION MATERIALS--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
22 Leefield	Fair: wetness.	Improbable: excess fines.	Improbable: excess fines.	Fair: too sandy.
23 Leon	Poor: wetness.	Probable	Improbable: too sandy.	Poor: too sandy, wetness.
24, 25 Lucy	Good	Improbable: excess fines.	Improbable: excess fines.	Poor: too sandy.
26 Lutterloh	Fair: wetness.	Probable	Improbable: too sandy.	Poor: too sandy.
27 Lynchburg	Poor: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
28* Meggett	Poor: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer, wetness.
29, 30 Norfolk	Good	Improbable: excess fines.	Improbable: excess fines.	Fair: too sandy.
31 Norfolk	Fair: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer.
32 Ocilla	Fair: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: too sandy.
33, 34 Orangeburg	Good	Improbable: excess fines.	Improbable: excess fines.	Good.
35 Orangeburg	Good	Improbable: excess fines.	Improbable: excess fines.	Fair: slope.
36:*				
Orangeburg	Good	Improbable: excess fines.	Improbable: excess fines.	Good.
Urban land.				
37 Ortega	Good	Probable	Improbable: too sandy.	Poor: too sandy.
38:*				
Pamlico	Poor: wetness, excess humus.	Probable	Improbable: too sandy.	Poor: wetness.
Dorovan	Poor: low strength, wetness.	Probable	Improbable: too sandy.	Poor: excess humus, wetness.
39 Pelham	Poor: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: too sandy, wetness.
40.* Pits				

See footnote at end of table.

TABLE 12.--CONSTRUCTION MATERIALS--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
41, 42----------------- Plummer	Poor: wetness.	Probable-------------	Improbable: too sandy.	Poor: too sandy, wetness.
43, 44*---------------- Rutlege	Poor: wetness.	Probable-------------	Improbable: too sandy.	Poor: too sandy, wetness.
45--------------------- Sapelo	Fair: wetness.	Improbable: thin layer.	Improbable: too sandy.	Poor: too sandy.
46--------------------- Surrency	Poor: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: too sandy, wetness.
47--------------------- Talquin	Poor: wetness.	Probable-------------	Improbable: too sandy.	Poor: too sandy, wetness.
48--------------------- Troup	Good-----------------	Probable-------------	Improbable: too sandy.	Poor: too sandy.
49.* Urban land				
50, 51----------------- Wagram	Good-----------------	Improbable: excess fines.	Improbable: excess fines.	Too sandy.
52--------------------- Yonges	Poor: wetness, low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 13.--WATER MANAGEMENT

[Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "moderate," and "severe." Absence of an entry indicates that the soil was not evaluated]

Map symbol and soil name	Limitations for--		Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Drainage	Irrigation	Terraces and diversions	Grassed waterways
1 Albany	Severe: seepage.	Severe: seepage, piping, wetness.	Cutbanks cave	Wetness, droughty, fast intake.	Wetness, too sandy.	Wetness, droughty.
2:* Albany	Severe: seepage.	Severe: seepage, piping, wetness.	Cutbanks cave	Wetness, droughty, fast intake.	Wetness, too sandy.	Wetness, droughty.
Urban land.						
3 Alpin	Severe: seepage.	Severe: seepage, piping.	Deep to water	Droughty, soil blowing.	Too sandy, soil blowing.	Droughty.
4.* Arents						
5 Blanton	Severe: seepage.	Severe: piping, seepage.	Deep to water	Droughty, fast intake, soil blowing.	Too sandy, soil blowing.	Droughty.
6 Bonifay	Severe: seepage.	Severe: seepage, piping.	Not needed	Fast intake, droughty, soil blowing.	Slope, too sandy, soil blowing.	Droughty.
7 Chaires	Severe: seepage.	Severe: seepage, piping, wetness.	Cutbanks cave	Wetness, droughty, fast intake.	Wetness, too sandy, soil blowing.	Wetness, droughty.
8 Chipley	Severe: seepage.	Severe: seepage.	Cutbanks cave	Wetness, droughty, fast intake.	Wetness, too sandy, soil blowing.	Droughty.
9 Dorovan	Moderate: seepage.	Severe: excess humus, wetness.	Floods, excess humus.	Wetness	Not needed	Wetness.
10, 11 Dothan	Moderate: seepage, slope.	Severe: piping.	Deep to water	Droughty, fast intake, slope.	Favorable	Droughty.
12, 13 Faceville	Moderate: seepage, slope.	Moderate: piping.	Deep to water	Slope	Erodes easily	Erodes easily.
14 Faceville	Severe: slope.	Moderate: piping.	Deep to water	Slope	Slope, erodes easily.	Slope, erodes easily.
15 Foxworth	Severe: seepage.	Severe: seepage.	Deep to water	Droughty, fast intake, soil blowing.	Too sandy, soil blowing.	Droughty.
16, 17 Fuquay	Slight	Moderate: piping.	Not needed	Fast intake	Favorable	Favorable.

See footnote at end of table.

TABLE 13.--WATER MANAGEMENT--Continued

Map symbol and soil name	Limitations for-- Pond reservoir areas	Limitations for-- Embankments, dikes, and levees	Features affecting-- Drainage	Features affecting-- Irrigation	Features affecting-- Terraces and diversions	Features affecting-- Grassed waterways
18----------------- Kershaw	Severe: seepage.	Severe: seepage, piping.	Deep to water	Droughty, fast intake.	Too sandy-------	Droughty.
19----------------- Kershaw	Severe: seepage.	Severe: seepage, piping.	Deep to water	Droughty, fast intake, slope.	Too sandy-------	Droughty.
20:*						
Kershaw-----------	Severe: seepage.	Severe: seepage, piping.	Deep to water	Droughty, fast intake.	Too sandy-------	Droughty.
Urban land.						
21----------------- Lakeland	Severe: seepage.	Severe: seepage, piping.	Deep to water	Droughty, fast intake, soil blowing.	Severe: too sandy, soil blowing.	Severe: droughty.
22----------------- Leefield	Severe: seepage.	Severe: piping, wetness.	Favorable-------	Wetness, droughty, fast intake.	Wetness---------	Droughty.
23----------------- Leon	Severe: seepage.	Severe: seepage, piping, wetness.	Cutbanks cave	Wetness, fast intake.	Not needed------	Wetness.
24----------------- Lucy	Severe: seepage.	Severe: piping.	Deep to water	Droughty, fast intake.	Favorable-------	Droughty.
25----------------- Lucy	Severe: seepage.	Severe: piping.	Deep to water	Droughty, fast intake, slope.	Favorable-------	Droughty.
26----------------- Lutterloh	Severe: seepage.	Severe: seepage, piping, wetness.	Cutbanks cave	Wetness, droughty, fast intake.	Wetness, too sandy, soil blowing.	Droughty.
27----------------- Lynchburg	Moderate: seepage.	Severe: piping, wetness.	Favorable-------	Wetness---------	Wetness---------	Wetness.
28*---------------- Meggett	Moderate: seepage.	Severe: hard to pack, wetness.	Percs slowly, floods.	Wetness, percs slowly.	Wetness, percs slowly.	Wetness, percs slowly.
29, 30------------- Norfolk	Moderate: seepage.	Slight----------	Not needed------	Fast intake, slope.	Slope-----------	Slope.
31----------------- Norfolk	Moderate: seepage.	Slight----------	Not needed------	Fast intake, slope.	Soil blowing----	Favorable.
32----------------- Ocilla	Severe: seepage.	Severe: piping, wetness.	Favorable-------	Wetness, droughty, fast intake.	Wetness---------	Wetness, droughty.
33, 34------------- Orangeburg	Moderate: seepage, slope.	Moderate: piping.	Deep to water	Droughty, slope.	Favorable-------	Droughty.

See footnote at end of table.

TABLE 13.--WATER MANAGEMENT--Continued

Map symbol and soil name	Limitations for-- Pond reservoir areas	Embankments, dikes, and levees	Features affecting-- Drainage	Irrigation	Terraces and diversions	Grassed waterways
35----------------- Orangeburg	Severe: slope.	Moderate: piping.	Deep to water	Droughty, slope.	Slope-----------	Slope, droughty.
36:*						
Orangeburg--------	Moderate: seepage, slope.	Moderate: piping.	Deep to water	Droughty, slope.	Favorable------	Droughty.
Urban land.						
37----------------- Ortega	Severe: seepage.	Severe: seepage, piping.	Not needed-----	Droughty, fast intake, soil blowing.	Too sandy, soil blowing.	Droughty.
38:*						
Pamlico-----------	Severe: seepage.	Severe: piping.	Floods, poor outlets.	Wetness, floods.	Not needed-----	Not needed.
Dorovan-----------	Moderate: seepage.	Severe: excess humus, wetness.	Floods, excess humus.	Wetness---------	Not needed-----	Wetness.
39----------------- Pelham	Severe: seepage.	Severe: piping, wetness.	Floods----------	Wetness, droughty, fast intake.	Wetness---------	Wetness, droughty.
40.* Pits						
41----------------- Plummer	Severe: seepage.	Severe: seepage, wetness.	Poor outlets, cutbanks cave.	Wetness, fast intake.	Not needed-----	Wetness.
42----------------- Plummer	Severe: seepage.	Severe: seepage, wetness.	Floods, poor outlets.	Wetness, fast intake.	Not needed-----	Wetness.
43, 44*------------ Rutlege	Severe: seepage.	Severe: seepage, piping, wetness.	Cutbanks cave, wetness, floods.	Wetness, fast intake, droughty.	Not needed-----	Wetness, droughty.
45----------------- Sapelo	Severe: seepage.	Severe: seepage, piping, wetness.	Cutbanks cave	Wetness, droughty, fast intake.	Wetness, too sandy.	Droughty.
46----------------- Surrency	Severe: seepage.	Severe: seepage, piping, ponding.	Ponding, floods, cutbanks cave.	Ponding, droughty, fast intake.	Ponding, too sandy.	Wetness, droughty.
47----------------- Talquin	Severe: seepage.	Severe: seepage, piping, wetness.	Cutbanks cave	Wetness, droughty, fast intake.	Wetness, too sandy, soil blowing.	Wetness, droughty.
48----------------- Troup	Severe: seepage.	Severe: seepage, piping.	Deep to water	Droughty, fast intake.	Too sandy-------	Droughty.

See footnote at end of table.

TABLE 13.--WATER MANAGEMENT--Continued

Map symbol and soil name	Limitations for-- Pond reservoir areas	Embankments, dikes, and levees	Features affecting-- Drainage	Irrigation	Terraces and diversions	Grassed waterways
49.* Urban land						
50 Wagram	Moderate: seepage.	Moderate: piping.	Not needed	Fast intake	Slope, too sandy.	Favorable.
51 Wagram	Severe: slope.	Moderate: piping.	Not needed	Slope, fast intake.	Slope, too sandy.	Favorable.
52 Yonges	Slight	Severe: wetness.	Floods	Wetness, floods, fast intake.	Not needed	Wetness.

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 14.--ENGINEERING INDEX PROPERTIES

[Absence of an entry indicates that data were not estimated]

Map symbol and soil name	Depth	USDA texture	Classification		Fragments > 3 inches	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
1------------------ Albany	0-50	Loamy sand------	SM	A-2	0	100	100	75-90	12-23	---	NP
	50-63	Sandy loam------	SM	A-2	0	100	100	75-92	22-30	---	NP
	63-78	Sandy clay loam, sandy loam, fine sandy loam.	SC, SM, SM-SC	A-2, A-4, A-6	0	97-100	95-100	70-100	25-50	<40	NP-17
2:*											
Albany------------	0-50	Loamy sand------	SM	A-2	0	100	100	75-90	12-23	---	NP
	50-63	Sandy loam------	SM	A-2	0	100	100	75-92	22-30	---	NP
	63-78	Sandy clay loam, sandy loam, fine sandy loam.	SC, SM, SM-SC	A-2, A-4, A-6	0	97-100	95-100	70-100	25-50	<40	NP-17
Urban land.											
3------------------ Alpin	0-4	Sand------------	SP-SM, SM	A-3, A-2-4	0	95-100	90-100	60-100	5-20	---	NP
	4-55	Fine sand, sand	SP-SM	A-3, A-2-4	0	95-100	90-100	60-100	5-12	---	NP
	55-90	Fine sand, sand	SP-SM, SM	A-2-4	0	95-100	90-100	60-100	11-20	---	NP
4.* Arents											
5------------------ Blanton	0-52	Fine sand-------	SP-SM	A-3, A-2-4	0	100	100	65-100	5-12	---	NP
	52-80	Sandy clay loam, sandy loam, fine sandy loam.	SC, SM-SC, SM	A-4, A-2-4, A-2-6, A-6	0	100	100	69-95	25-50	18-23	4-12
6------------------ Bonifay	0-42	Fine sand-------	SP-SM, SM	A-3, A-2-4	0	98-100	98-100	60-95	5-20	---	NP
	42-53	Sandy loam, sandy clay loam.	SM-SC, SC, SM	A-2-4, A-4	0	95-100	90-100	63-95	23-50	<30	NP-12
	53-80	Sandy clay loam, sandy clay.	SM-SC, SC	A-2, A-4, A-6, A-7	0	95-100	90-100	60-95	30-50	25-45	5-22
7------------------ Chaires	0-28	Fine sand-------	SP, SP-SM	A-3	0	100	100	80-100	2-10	---	NP
	28-54	Sand, fine sand, loamy fine sand.	SP-SM, SM	A-3, A-2-4	0	100	100	85-100	5-20	---	NP
	54-68	Sandy loam, fine sandy loam, sandy clay loam.	SM, SM-SC, SC	A-2-4, A-2-6	0	100	100	85-100	20-35	<40	NP-20
	68-80	Sandy clay loam, sandy clay.	SC	A-2-6, A-2-7, A-6, A-7	0	100	100	85-100	25-50	25-50	10-30

See footnote at end of table.

TABLE 14.--ENGINEERING INDEX PROPERTIES--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Frag- ments > 3 inches	Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
8-------------------- Chipley	0-15	Fine sand--------	SP-SM	A-3, A-2-4	0	100	100	80-100	6-12	---	NP
	15-80	Sand, fine sand	SP-SM	A-3, A-2-4	0	100	100	80-100	6-12	---	NP
9-------------------- Dorovan	0-5	Mucky peat-------	Pt	---	0	---	---	---	---	---	---
	5-65	Muck-------------	Pt	---	0	---	---	---	---	---	---
	65-80	Sand, loamy sand, loam.	SP-SM, SM-SC, SM	A-1, A-3, A-4, A-2-4	0	100	100	5-70	5-49	<20	NP-7
10, 11--------------- Dothan	0-13	Loamy fine sand	SM	A-2	0	95-100	92-100	60-80	13-30	---	NP
	13-46	Sandy clay loam, sandy loam.	SM-SC, SC, SM	A-2, A-4, A-6	0	95-100	92-100	68-90	23-45	<40	NP-15
	46-75	Sandy clay loam, sandy clay.	SM-SC, SC, SM	A-2, A-4, A-6, A-7	0	95-100	92-100	70-95	30-50	25-45	4-18
12, 13, 14----------- Faceville	0-13	Sandy loam-------	SM, SM-SC	A-2, A-4	0	90-100	85-100	72-97	17-38	<25	NP-5
	13-80	Sandy clay, clay, clay loam.	CL, SC	A-6, A-7	0	98-100	95-100	75-99	45-72	25-43	11-23
15------------------- Foxworth	0-46	Sand-------------	SP-SM	A-3, A-2-4	0	100	100	60-100	5-12	---	NP
	46-80	Sand, fine sand	SP, SP-SM	A-3, A-2-4	0	100	100	50-100	1-12	---	NP
16, 17--------------- Fuquay	0-37	Fine sand--------	SP-SM, SM	A-2, A-3	0	95-100	90-100	50-83	5-20	---	NP
	37-64	Sandy loam, sandy clay loam.	SM, SC, SM-SC	A-2, A-4, A-6	0	85-100	85-100	60-80	23-45	<35	NP-18
	64-80	Sandy clay loam	SC, CL	A-2, A-4, A-6	0	95-100	90-100	60-93	28-55	20-39	8-25
18, 19--------------- Kershaw	0-80	Sand-------------	SP, SP-SM	A-2, A-3	0	98-100	98-100	50-80	1-7	---	NP
20:* Kershaw------------	0-80	Sand-------------	SP, SP-SM	A-2, A-3	0	98-100	98-100	50-80	1-7	---	NP
Urban land.											
21------------------- Lakeland	0-78	Sand-------------	SP-SM	A-3, A-2-4	0	90-100	90-100	60-100	5-12	---	NP
	78-91	Sand, fine sand	SP, SP-SM	A-3, A-2-4	0	90-100	90-100	50-100	1-12	---	NP
22------------------- Leefield	0-36	Loamy sand-------	SM, SW-SM, SP-SM	A-2	0	98-100	95-100	65-95	10-20	---	NP
	36-51	Sandy loam, sandy clay loam.	SC, SM, SM-SC	A-2, A-4, A-6	0	95-100	93-100	65-95	20-40	<40	NP-16
	51-80	Sandy loam, sandy clay loam.	SC, SM, SM-SC	A-2, A-4, A-6	0	95-100	95-100	65-90	20-40	<40	NP-20

See footnote at end of table.

TABLE 14.--ENGINEERING INDEX PROPERTIES--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Frag- ments > 3 inches	Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
23----------------- Leon	0-25	Sand-------------	SP, SP-SM	A-3, A-2-4	0	100	100	80-100	2-12	---	NP
	25-41	Sand, fine sand	SM, SP-SM, SP	A-3, A-2-4	0	100	100	80-100	3-20	---	NP
	41-80	Sand, fine sand	SP, SP-SM	A-3, A-2-4	0	100	100	80-100	2-12	---	NP
24, 25------------- Lucy	0-30	Fine sand--------	SM, SP-SM	A-2	0	98-100	95-100	50-87	10-30	---	NP
	30-36	Sandy loam, sandy clay loam.	SM, SC, SM-SC	A-2, A-4, A-6	0	97-100	95-100	55-95	15-50	10-30	NP-15
	36-80	Sandy loam, sandy clay loam, clay loam.	SC, SM-SC, SM	A-2, A-6, A-4	0	100	95-100	60-95	20-50	20-40	5-20
26----------------- Lutterloh	0-59	Fine sand--------	SP, SP-SM, SM	A-3, A-2-4	0	100	100	85-95	2-15	---	NP
	59-71	Fine sandy loam, very fine sandy loam, sandy clay loam.	SM, SM-SC, SC	A-2-4, A-2-6, A-4, A-6	0	100	100	85-95	20-40	<35	NP-20
	71-80	Sandy clay loam, sandy clay.	SC, CL, CH	A-6, A-7	0	100	100	90-100	40-60	35-70	20-42
27----------------- Lynchburg	0-18	Fine sandy loam	SM, ML	A-2, A-4	0	92-100	90-100	75-100	25-65	<30	NP-7
	18-65	Sandy clay loam, sandy loam, clay loam.	SM-SC, SC, CL, CL-ML	A-2, A-4, A-6	0	92-100	90-100	70-100	25-67	15-40	4-18
	65-80	Variable---------	---	---	---	---	---	---	---	---	---
28*---------------- Meggett	0-12	Very fine sandy loam	SM	A-2, A-4	0	100	90-100	85-100	13-41	---	NP
	12-50	Clay, sandy clay, clay loam.	CH, MH, CL	A-6, A-7	0	100	90-100	85-100	51-90	30-70	20-40
	50-80	Sandy clay, clay loam, sandy clay loam.	CL, SC, SM	A-4, A-6, A-2	0	90-100	65-100	50-100	40-60	<40	NP-25
29, 30------------- Norfolk	0-8	Loamy fine sand	SM	A-2	0	95-100	92-100	50-91	13-30	<20	NP
	8-58	Sandy loam, sandy clay loam, clay loam.	SC, SM-SC, CL, CL-ML	A-2, A-4, A-6	0	95-100	91-100	70-96	30-55	20-38	4-15
	58-80	Sandy clay loam, clay loam, sandy clay.	SC, SM-SC, CL, CL-ML	A-4, A-6	0	100	98-100	65-98	36-72	20-45	4-22
31----------------- Norfolk	0-7	Loamy sand-------	SM	A-2-4	0	95-100	95-100	85-95	13-25	---	NP
	7-14	Sandy loam-------	SM, SM-SC	A-2-4	0	95-100	95-100	85-95	13-35	<23	NP-7
	14-64	Sandy clay loam, clay loam.	SC, SM-SC, CL, CL-ML	A-2-4, A-2-6, A-4, A-6	0	95-100	95-100	85-95	30-55	20-40	4-20
	64-80	Sandy clay, clay	CH	A-7	0	95-100	95-100	85-100	51-100	50-100	23-60

See footnote at end of table.

TABLE 14.--ENGINEERING INDEX PROPERTIES--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments > 3 inches	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
32----------------- Ocilla	0-29	Sand-------------	SM, SP-SM	A-2, A-3	0	100	95-100	75-100	8-35	---	NP
	29-80	Sandy loam, sandy clay loam.	SM, CL, SC	A-2, A-4, A-6	0	100	95-100	80-100	30-55	<40	NP-18
33, 34, 35---------- Orangeburg	0-10	Fine sandy loam	SM	A-2	0	98-100	95-100	75-95	20-35	---	NP
	10-80	Sandy clay loam	SC, CL	A-6, A-4	0	98-100	95-100	71-91	38-55	22-40	8-19
36:* Orangeburg--------	0-10	Fine sandy loam	SM	A-2	0	98-100	95-100	75-95	20-35	---	NP
	10-80	Sandy clay loam	SC, CL	A-6, A-4	0	98-100	95-100	71-91	38-55	22-40	8-19
Urban land.											
37----------------- Ortega	0-10	Sand-------------	SP, SP-SM	A-3	0	100	100	90-100	3-8	---	NP
	10-99	Fine sand, sand	SP, SP-SM	A-3	0	100	100	90-100	2-7	---	NP
38:* Pamlico------------	0-32	Muck-------------	Pt	---	0	---	---	---	---	---	---
	32-80	Loamy sand, sand, loamy fine sand.	SM, SP-SM	A-2, A-3	0	100	100	70-95	5-20	---	NP
Dorovan------------	0-5	Mucky peat-------	Pt	---	0	---	---	---	---	---	---
	5-65	Muck-------------	Pt	---	0	---	---	---	---	---	---
	65-80	Sand, loamy sand, loam.	SP-SM, SM-SC, SM	A-1, A-3, A-4, A-2-4	0	100	100	5-70	5-49	<20	NP-7
39----------------- Pelham	0-26	Fine sand--------	SM	A-2	0	100	95-100	75-90	15-30	---	NP
	26-80	Sandy clay loam, sandy loam.	SM, SC, SM-SC	A-2, A-4, A-6	0	100	95-100	65-90	30-50	15-30	2-12
40.* Pits											
41----------------- Plummer	0-61	Fine sand--------	SM, SP-SM	A-2-4, A-3	0	100	100	75-96	5-26	---	NP
	61-80	Sandy loam, sandy clay loam, fine sandy loam.	SM, SC, SM-SC	A-2-4, A-2-6	0	100	97-100	76-96	26-35	<31	NP-14
42----------------- Plummer	0-60	Mucky fine sand	SM, SP-SM	A-2-4, A-3	0	100	100	75-96	5-26	---	NP
	60-80	Sandy loam, sandy clay loam, fine sandy loam.	SM, SC, SM-SC	A-2-4, A-2-6	0	100	97-100	76-96	26-35	<31	NP-14
43, 44*------------ Rutlege	0-23	Loamy fine sand	SM, SP-SM	A-2, A-3	0	95-100	95-100	50-80	5-35	<25	NP
	23-82	Sand, loamy sand, loamy fine sand.	SP-SM, SP, SM	A-2, A-3	0	95-100	95-100	50-80	2-25	<20	NP

See footnote at end of table.

TABLE 14.--ENGINEERING INDEX PROPERTIES--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Frag- ments > 3 inches	Percentage passing sieve number-- 4	10	40	200	Liquid limit	Plas- ticity index
	In				Pct					Pct	
45----------------- Sapelo	0-14	Fine sand--------	SM, SP, SP-SM	A-2, A-3	0	100	100	90-100	4-20	---	NP
	14-26	Fine sand, sand	SM, SP-SM	A-2, A-3	0	100	100	95-100	8-20	---	NP
	26-43	Fine sand, sand	SM, SP, SP-SM	A-2, A-3	0	100	100	90-100	4-20	---	NP
	43-80	Sandy loam, sandy clay loam, fine sandy loam.	SM, SC, SM-SC	A-2, A-4, A-6	0	100	100	90-100	20-50	<40	NP-20
46----------------- Surrency	0-36	Loamy sand-------	SM	A-2	0	100	95-100	50-75	15-26	---	NP
	36-65	Sandy clay loam	SM, SC, SM-SC	A-2, A-6, A-4	---	100	95-100	80-98	30-44	<34	NP-21
47----------------- Talquin	0-25	Fine sand--------	SP, SM, SP-SM	A-3, A-2-4	0	100	100	80-100	2-15	---	NP
	25-37	Sand, fine sand	SP-SM, SM	A-3, A-2-4	0	100	100	80-100	5-20	---	NP
	37-80	Sand, fine sand	SP, SP-SM	A-3, A-2-4	0	100	100	80-100	2-12	---	NP
48----------------- Troup	0-44	Fine sand--------	SM	A-2, A-4	0	100	100	65-90	15-40	---	NP
	44-80	Sandy clay loam, sandy loam.	SC, SM-SC, CL-ML, CL	A-4, A-2	0	95-100	95-100	70-90	24-55	19-30	4-10
49.* Urban land											
50, 51------------- Wagram	0-31	Loamy fine sand	SM	A-2	0	100	98-100	50-85	15-35	---	NP
	31-62	Sandy clay loam, sandy loam.	SC	A-2, A-4, A-6	0	100	98-100	80-95	31-49	21-40	8-25
52----------------- Yonges	0-9	Fine sandy loam	SM, ML	A-2, A-4	0	100	100	90-100	25-55	<30	NP-7
	9-71	Sandy clay loam, clay loam.	CL-ML, CL, SC, SM-SC	A-4, A-6, A-7	0	100	100	95-100	40-70	25-45	6-25
	71-80	Fine sandy loam, sandy clay loam.	CL, ML, SC, SM	A-4, A-6	0	100	100	80-100	40-65	20-40	3-22

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 15.--PHYSICAL AND CHEMICAL PROPERTIES OF SOILS

[Entries under "Erosion factors--T" apply to the entire profile. Entries under "Wind erodibility group" and "Organic matter" apply only to the surface layer. Absence of an entry indicates that data were not available or were not estimated]

Map symbol and soil name	Depth	Clay <2mm	Moist bulk density	Permeability	Available water capacity	Soil reaction	Shrink-swell potential	Erosion factors K	Erosion factors T	Wind erodibility group	Organic matter
	In	Pct	G/cm3	In/hr	In/in	pH					Pct
1----------------- Albany	0-50	2-12	1.45-1.65	6.0-20	0.02-0.04	3.6-5.5	Low-----------	0.17	5	2	2-5
	50-63	14-20	1.55-1.90	2.0-6.0	0.08-0.10	4.5-5.5	Low-----------	0.20			
	63-78	15-35	1.60-1.90	0.6-2.0	0.10-0.16	4.5-5.5	Low-----------	0.24			
2:*											
Albany-----------	0-50	2-12	1.45-1.65	6.0-20	0.02-0.04	3.6-5.5	Low-----------	0.17	5	2	2-5
	50-63	14-20	1.55-1.90	2.0-6.0	0.08-0.10	4.5-5.5	Low-----------	0.20			
	63-78	15-35	1.60-1.90	0.6-2.0	0.10-0.16	4.5-5.5	Low-----------	0.24			
Urban land.											
3----------------- Alpin	0-4	3-7	1.35-1.55	>20	0.05-0.10	4.5-6.0	Very low------	0.10	5	2	>.5
	4-55	3-7	1.40-1.55	>20	0.03-0.07	4.5-6.0	Very low------	0.10			
	55-90	5-8	1.45-1.60	>20	0.06-0.09	4.5-6.0	Very low------	0.10			
4.* Arents											
5----------------- Blanton	0-52	2-7	1.35-1.60	6.0-20	0.03-0.07	4.5-6.0	Very low------	0.17	5	2	.5-1
	52-80	12-30	1.60-1.70	0.6-2.0	0.10-0.15	4.5-5.5	Low-----------	0.32			
6----------------- Bonifay	0-42	3-9	1.35-1.60	6.0-20	0.03-0.08	4.5-6.5	Low-----------	0.17	5	2	1-3
	42-53	15-35	1.50-1.70	0.6-2.0	0.10-0.15	4.5-5.5	Low-----------	0.24			
	53-80	20-45	1.50-1.70	0.2-0.6	0.10-0.15	4.5-5.5	Low-----------	0.24			
7----------------- Chaires	0-28	<3	1.35-1.45	6.0-20	0.02-0.05	3.6-5.5	Low-----------	0.17	5	1	1-3
	28-54	2-13	1.45-1.60	0.6-2.0	0.05-0.10	3.6-5.5	Low-----------	0.20			
	54-68	15-35	1.50-1.70	0.2-0.6	0.10-0.15	4.5-7.3	Low-----------	0.37			
	68-80	20-40	1.50-1.70	0.06-0.2	0.12-0.17	4.5-7.3	Moderate------	0.32			
8----------------- Chipley	0-15	1-5	1.35-1.45	6.0-20	0.05-0.10	4.5-6.5	Very low------	0.17	5	2	2-5
	15-80	2-7	1.45-1.80	6.0-20	0.03-0.08	4.5-6.5	Very low------	0.17			
9----------------- Dorovan	0-5	---	0.25-0.40	0.6-2.0	0.25-0.50	3.6-5.0	--------------	----	---	2	---
	5-65	---	0.35-0.55	0.6-2.0	0.25-0.50	3.6-5.0	--------------	----			
	65-80	5-20	1.40-1.65	6.0-20	0.05-0.08	3.6-5.0	Low-----------	----			
10, 11------------ Dothan	0-13	5-15	1.50-1.60	2.0-6.0	0.06-0.10	4.5-5.5	Very low------	0.20	4	2	<.5
	13-46	18-35	1.60-1.70	0.6-2.0	0.10-0.14	4.5-6.0	Low-----------	0.28			
	46-75	18-40	1.60-1.70	0.2-0.6	0.08-0.12	4.5-6.0	Low-----------	0.28			
12, 13, 14-------- Faceville	0-13	15-20	1.60-1.70	6.0-20	0.06-0.09	4.5-5.5	Low-----------	0.28	5	3	1-3
	13-80	35-60	1.55-1.65	0.6-2.0	0.12-0.18	4.5-5.5	Low-----------	0.37			
15----------------- Foxworth	0-46	2-8	1.35-1.60	>20	0.05-0.10	4.5-5.5	Low-----------	0.17	5	2	>1
	46-80	2-6	1.40-1.60	>20	0.03-0.08	4.5-5.5	Low-----------	0.17			
16, 17------------ Fuquay	0-37	2-7	1.40-1.50	>6.0	0.04-0.09	4.5-5.5	Low-----------	0.20	5	1	1-3
	37-64	15-35	1.60-1.70	0.6-2.0	0.12-0.15	4.5-5.5	Low-----------	0.20			
	64-80	20-35	1.60-1.70	0.06-0.2	0.10-0.13	4.5-5.5	Low-----------	0.20			
18, 19------------ Kershaw	0-80	1-5	1.35-1.55	>20	0.02-0.05	4.5-6.0	Very low------	0.15	5	1	<.5

See footnote at end of table.

TABLE 15.--PHYSICAL AND CHEMICAL PROPERTIES OF SOILS--Continued

Map symbol and soil name	Depth	Clay <2mm	Moist bulk density	Permeability	Available water capacity	Soil reaction	Shrink-swell potential	Erosion factors K	Erosion factors T	Wind erodi- bility group	Organic matter
	In	Pct	G/cm3	In/hr	In/in	pH					Pct
20:*											
Kershaw----------	0-80	1-5	1.35-1.55	>20	0.02-0.05	4.5-6.0	Very low-----	0.15	5	1	<.5
Urban land.											
21---------------- Lakeland	0-78	2-8	1.35-1.55	>20	0.05-0.08	4.5-6.0	Low-----------	0.17	5	2	>1
	78-91	2-6	1.50-1.60	>20	0.03-0.08	4.5-6.0	Low-----------	----			
22---------------- Leefield	0-36	8-12	1.30-1.65	6.0-20	0.04-0.07	4.5-6.0	Low-----------	0.10	5	2	2-5
	36-51	15-35	1.40-1.70	0.6-2.0	0.10-0.13	4.5-5.5	Low-----------	0.15			
	51-80	15-35	1.60-1.70	0.2-0.6	0.08-0.12	4.5-5.5	Low-----------	0.10			
23---------------- Leon	0-25	1-6	1.40-1.65	6.0-20	0.02-0.05	3.6-5.5	Very low-----	0.20	5	1	.5-1
	25-41	2-8	1.50-1.70	0.6-6.0	0.05-0.10	3.6-5.5	Very low-----	0.20			
	41-80	1-6	1.40-1.65	>20	0.02-0.05	3.6-5.5	Very low-----	0.17			
24, 25------------ Lucy	0-30	2-12	1.35-1.65	6.0-20	0.06-0.10	5.1-5.5	Low-----------	0.20	5	1	.5-1
	30-36	20-30	1.60-1.70	2.0-6.0	0.10-0.12	4.5-5.5	Low-----------	0.24			
	36-80	20-35	1.55-1.70	0.6-2.0	0.12-0.14	4.5-5.5	Low-----------	0.28			
26---------------- Lutterloh	0-59	<5	1.35-1.55	6.0-20	0.02-0.05	5.1-6.0	Low-----------	0.24	5	1	<3
	59-71	15-30	1.60-1.70	0.6-2.0	0.10-0.15	5.1-6.0	Low-----------	0.32			
	71-80	30-55	1.60-1.70	<0.2	0.10-0.15	5.1-6.0	High----------	0.37			
27---------------- Lynchburg	0-18	5-20	1.60-1.70	2.0-6.0	0.09-0.13	4.5-5.5	Low-----------	0.20	4	3	2-5
	18-65	18-35	1.55-1.70	0.6-2.0	0.12-0.16	4.5-5.5	Low-----------	0.20			
	65-80	---	---	---	---	---	-------------	----			
28*--------------- Meggett	0-12	5-20	1.25-1.60	2.0-6.0	0.10-0.15	4.5-6.5	Low-----------	0.24	4	3	2-8
	12-50	40-60	1.50-1.70	0.06-0.2	0.13-0.18	4.5-6.5	High----------	0.32			
	50-80	25-50	1.60-1.70	0.2-2.0	0.12-0.16	4.5-6.5	Moderate-----	0.28			
29, 30------------ Norfolk	0-8	2-10	1.40-1.70	6.0-20	0.06-0.10	4.5-6.0	Low-----------	0.17	5	2	.5-2
	8-58	18-35	1.30-1.60	0.6-2.0	0.10-0.15	4.5-5.5	Low-----------	0.24			
	58-80	20-40	1.20-1.70	0.6-2.0	0.10-0.15	4.5-5.5	Low-----------	0.24			
31---------------- Norfolk	0-7	5-12	1.50-1.60	2.0-6.0	0.05-0.10	5.1-6.5	Low-----------	0.17	5	2	.5-2
	7-14	10-20	1.50-1.65	2.0-6.0	0.05-0.10	4.5-5.5	Low-----------	0.20			
	14-64	22-35	1.62-1.80	0.6-2.0	0.10-0.15	4.5-5.5	Moderate-----	0.32			
	64-80	35-80	1.30-1.65	<0.06	0.10-0.15	3.6-5.5	Very high----	0.37			
32---------------- Ocilla	0-29	2-7	1.40-1.50	2.0-20	0.05-0.08	3.6-5.5	Low-----------	0.17	5	1	1-3
	29-80	15-35	1.60-1.70	0.6-2.0	0.09-0.12	4.5-5.5	Low-----------	0.24			
33, 34, 35-------- Orangeburg	0-10	5-20	1.40-1.70	2.0-6.0	0.07-0.10	4.5-6.0	Low-----------	0.24	5	3	1-3
	10-80	20-35	1.50-1.70	0.6-2.0	0.10-0.13	4.5-5.5	Low-----------	0.24			
36:*											
Orangeburg-------	0-10	5-20	1.40-1.70	2.0-6.0	0.07-0.10	4.5-6.0	Low-----------	0.24	5	3	1-3
	10-80	20-35	1.50-1.70	0.6-2.0	0.10-0.13	4.5-5.5	Low-----------	0.24			
Urban land.											
37---------------- Ortega	0-10	1-3	1.20-1.55	6.0-20	0.05-0.08	4.5-6.5	Low-----------	0.15	5	2	1-2
	10-99	<3	1.35-1.60	6.0-20	0.03-0.06	4.5-6.5	Low-----------	0.15			
38:*											
Pamlico----------	0-32	---	0.25-0.40	0.6-2.0	0.24-0.26	3.6-4.4	-------------	----	---	2	---
	32-80	5-20	1.40-1.65	6.0-20	0.03-0.06	3.6-5.5	Low-----------	----			
Dorovan----------	0-5	---	0.25-0.40	0.6-2.0	0.25-0.50	4.5-5.5	-------------	----	---	2	---
	5-65	---	0.35-0.55	0.6-2.0	0.25-0.50	4.5-5.5	-------------	----			
	65-80	5-20	1.40-1.65	6.0-20	0.05-0.08	4.5-5.5	Low-----------	----			

See footnote at end of table.

TABLE 15.--PHYSICAL AND CHEMICAL PROPERTIES OF SOILS--Continued

Map symbol and soil name	Depth	Clay <2mm	Moist bulk density	Permeability	Available water capacity	Soil reaction	Shrink-swell potential	Erosion factors K	Erosion factors T	Wind erodibility group	Organic matter
	In	Pct	G/cm3	In/hr	In/in	pH					Pct
39----------------- Pelham	0-26	2-7	1.10-1.60	6.0-20	0.05-0.08	4.5-5.5	Very low-----	0.10	5	1	1-3
	26-80	15-35	1.60-1.80	0.6-2.0	0.10-0.13	4.5-5.5	Low----------	0.24			
40.* Pits											
41----------------- Plummer	0-61	2-7	1.30-1.80	2.0-6.0	0.03-0.08	4.5-6.0	Very low-----	0.10	5	1	1-3
	61-80	15-30	1.50-1.90	0.6-2.0	0.10-0.13	4.5-5.5	Very low-----	0.15			
42----------------- Plummer	0-60	2-7	1.30-1.80	2.0-6.0	0.03-0.08	4.5-6.0	Very low-----	0.10	5	2	3-15
	60-80	15-30	1.50-1.70	0.6-2.0	0.10-0.13	4.5-5.5	Very low-----	0.15			
43, 44*----------- Rutlege	0-23	<10	1.25-1.40	6.0-20	0.15-0.20	3.6-5.5	Low----------	0.17	5	2	3-15
	23-82	<10	1.45-1.70	6.0-20	0.04-0.08	3.6-5.0	Low----------	0.17			
45----------------- Sapelo	0-14	1-5	1.35-1.50	6.0-20	0.03-0.07	4.5-5.5	Low----------	0.17	5	1	1-3
	14-26	4-7	1.50-1.70	0.6-2.0	0.10-0.15	4.5-5.5	Low----------	0.15			
	26-43	3-6	1.45-1.60	6.0-20	0.03-0.07	4.5-5.5	Low----------	0.17			
	43-80	15-30	1.55-1.90	0.6-2.0	0.12-0.17	4.5-5.5	Low----------	0.24			
46----------------- Surrency	0-36	8-12	1.35-1.50	6.0-20	0.15-0.20	3.6-5.0	Low----------	0.10	5	2	3-12
	36-65	20-35	1.55-1.70	0.6-2.0	0.10-0.15	3.6-5.0	Low----------	0.15			
47----------------- Talquin	0-25	<6	1.35-1.60	6.0-20	0.02-0.05	3.6-5.5	Low----------	0.15	5	1	<2
	25-37	2-8	1.50-1.70	0.6-6.0	0.05-0.10	3.6-5.5	Low----------	0.17			
	37-80	<6	1.40-1.65	>6.0	0.02-0.05	3.6-5.5	Low----------	0.15			
48----------------- Troup	0-44	2-7	1.45-1.65	6.0-20	0.05-0.10	4.5-5.5	Very low-----	0.17	5	1	1-2
	44-80	15-30	1.50-1.70	0.6-2.0	0.10-0.13	4.5-5.5	Low----------	0.20			
49.* Urban land											
50, 51------------ Wagram	0-31	2-12	1.40-1.65	6.0-20	0.05-0.08	4.5-5.5	Low----------	0.15	5	2	1-2
	31-62	15-35	1.60-1.70	0.6-2.0	0.12-0.16	4.5-5.5	Low----------	0.20			
52----------------- Yonges	0-9	2-20	1.35-1.70	0.6-6.0	0.09-0.14	3.6-7.8	Low----------	0.15	5	3	1-3
	9-71	20-35	1.60-1.70	0.2-0.6	0.13-0.18	5.6-8.4	Low----------	0.17			
	71-80	15-35	1.20-1.70	0.6-2.0	0.12-0.16	6.1-8.4	Low----------	0.20			

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 16.--SOIL AND WATER FEATURES

[The definitions of "flooding" and "water table" in the text explain terms such as "rare," "brief," "apparent," and "perched." Absence of an entry indicates that the feature is not a concern]

Map symbol and soil name	Hydro-logic group	Flooding			High water table			Bedrock		Subsidence		Risk of corrosion	
		Frequency	Duration	Months	Depth	Kind	Months	Depth	Hard-ness	Initial	Total	Uncoated steel	Concrete
					Ft			In		In	In		
1------------------ Albany	C	---	---	---	1.0-2.5	Apparent	Dec-Mar	>60	---	---	---	High------	High.
2:*													
Albany------------	C	---	---	---	1.0-2.5	Apparent	Dec-Mar	>60	---	---	---	High------	High.
Urban land.													
3------------------ Alpin	A	None----------	---	---	>6.0	---	---	>90	---	---	---	Low-------	High.
4.* Arents													
5------------------ Blanton	A	None----------	---	---	5.0-6.0	Perched	Jan-Apr	>60	---	---	---	High------	High.
6------------------ Bonifay	A	None----------	---	---	4.0-5.0	Perched	Jan-Feb	>60	---	---	---	Low-------	High.
7------------------ Chaires	B/D	None----------	---	---	0-1.0	Apparent	Nov-Apr	>60	---	---	---	High------	High.
8------------------ Chipley	C	None----------	---	---	2.0-3.0	Apparent	Jun-Sep	>60	---	---	---	Low-------	High.
9**---------------- Dorovan	D	Frequent-----	Very long	Jan-Dec	+1-0.5	Apparent	Jan-Dec	>60	---	4-8	75	High------	High.
10, 11------------- Dothan	B	None----------	---	---	3.5-4.0	Perched	Jan-Apr	>60	---	---	---	Moderate	Moderate
12, 13, 14--------- Faceville	B	None----------	---	---	>6.0	---	---	>60	---	---	---	Low-------	Moderate
15----------------- Foxworth	A	None----------	---	---	3.5-6.0	Apparent	Jun-Oct	>60	---	---	---	Low-------	High.
16, 17------------- Fuquay	B	None----------	---	---	2.5-4.0	Perched	Jan-Mar	>60	---	---	---	Low-------	High.
18, 19------------- Kershaw	A	None----------	---	---	>6.0	---	---	>60	---	---	---	Low-------	High.

See footnotes at end of table.

TABLE 16.--SOIL AND WATER FEATURES--Continued

Map symbol and soil name	Hydro-logic group	Flooding			High water table			Bedrock		Subsidence		Risk of corrosion	
		Frequency	Duration	Months	Depth	Kind	Months	Depth	Hard-ness	Initial	Total	Uncoated steel	Concrete
					Ft			In		In	In		
20:* Kershaw	A	None	---	---	>6.0	---	---	>60	---	---	---	Low	High.
Urban land.													
21 Lakeland	A	None	---	---	>6.0	---	---	>72	---	---	---	Low	Moderate.
22 Leefield	C	None	---	---	1.5-2.5	Apparent	Dec-Mar	>60	---	---	---	Moderate	High.
23 Leon	A/D	None	---	---	0-1.0	Apparent	Jun-Feb	>60	---	---	---	High	High.
24, 25 Lucy	A	None	---	---	>6.0	---	---	>60	---	---	---	Low	High.
26 Lutterloh	C	None	---	---	1.5-2.5	Apparent	Dec-Mar	>60	---	---	---	High	Moderate.
27 Lynchburg	B/D	None	---	---	0.5-1.5	Apparent	Nov-Apr	>60	---	---	---	High	High.
28* Meggett	D	Frequent	Long	Dec-Apr	0-1.0	Apparent	Nov-Apr	>60	---	---	---	High	Moderate.
29, 30 Norfolk	B	None	---	---	4.0-6.0	Perched	Jan-Mar	>60	---	---	---	Moderate	High.
31 Norfolk	B	None	---	---	5.0-6.0	Perched	Jan-Apr	>60	---	---	---	Moderate	High.
32 Ocilla	C	None	---	---	1.0-2.5	Apparent	Dec-Apr	>60	---	---	---	High	Moderate.
33, 34, 35 Orangeburg	B	None	---	---	>6.0	---	---	>60	---	---	---	Moderate	Moderate.
36:* Orangeburg	B	None	---	---	>6.0	---	---	>60	---	---	---	Moderate	Moderate.
Urban land.													

See footnote at end of table.

TABLE 16.--SOIL AND WATER FEATURES--Continued

Map symbol and soil name	Hydro-logic group	Flooding			High water table			Bedrock		Subsidence		Risk of corrosion	
		Frequency	Duration	Months	Depth	Kind	Months	Depth	Hard-ness	Initial	Total	Uncoated steel	Concrete
					Ft			In		In	In		
37: Ortega	A	None	---	---	3.5-5.0	Apparent	Jun-Jan	>60	---	---	---	Low	High.
38:*													
Pamlico**	D	Frequent	Very long	Nov-Jun	+1-1.0	Apparent	Nov-Jul	>60	---	4-12	10-36	High	High.
Dorovan**	D	Frequent	Very long	Jan-Dec	+1-0.5	Apparent	Jan-Dec	>60	---	4-8	75	High	High.
39: Pelham	B/D	None	Brief	Dec-Mar	0.5-1.5	Apparent	Jan-Apr	>60	---	---	---	High	High.
40.* Pits													
41: Plummer	B/D	None	---	---	0-1.5	Apparent	Dec-Jul	>60	---	---	---	Moderate	High.
42**: Plummer	B/D	None	---	---	+2-1.5	Apparent	Dec-Jul	>60	---	---	---	Moderate	High.
43, 44*: Rutlege	D	Common	Brief	Dec-May	0-1.0	Apparent	Dec-May	>60	---	---	---	High	High.
45: Sapelo	D	None	---	---	1.5-2.5	Apparent	Nov-Apr	>60	---	---	---	High	High.
46: Surrency	D	Common	Very long	Dec-Mar	0-0.5	Apparent	Dec-Apr	>60	---	---	---	High	High.
47: Talquin	B/D	None	---	---	0-1.0	Apparent	Jun-Feb	>60	---	---	---	High	High.
48: Troup	A	None	---	---	>6.0	---	---	>60	---	---	---	Low	Moderate.
49.* Urban land													
50, 51: Wagram	A	None	---	---	>6.0	---	---	>60	---	---	---	Low	High.
52: Yonges	D	Frequent	Long	Nov-Mar	0-1.0	Apparent	Nov-Apr	>60	---	---	---	High	Moderate.

* See description of the map unit for composition and behavior characteristics of the map unit.

** In the "High water table--Depth" column, a plus sign preceding the range in depth indicates that the water table is above the surface of the soil. The first numeral in the range indicates how high the water rises above the surface. The second numeral indicates the depth below the surface.

TABLE 17.--PHYSICAL PROPERTIES OF SELECTED SOILS

Soil series and sample number	Depth	Horizon	Particle size distribution: Sand: Very coarse (2-1 mm)	Coarse (1-0.5 mm)	Medium (0.5-0.25 mm)	Fine (0.25-0.1 mm)	Very fine (0.1-0.05 mm)	Total (2-0.05 mm)	Silt (0.05-0.002 mm)	Clay (<0.002 mm)	Hydraulic conductivity	Bulk density (field moist)	Water content: 1/10 bar	1/3 bar	15 bar
	In		Percent								Cm/hr	Grams/cm	Percent (wt)		
Albany loamy sand:															
S76FL-073-002-1	0-4	A1	0.1	7.8	31.8	24.1	19.0	82.8	14.8	2.4	12.3	1.49	11.7	7.0	1.7
S76FL-073-002-2	4-21	A21	0.2	8.2	31.6	23.7	19.4	83.1	13.9	3.0	3.5	1.80	9.4	5.2	1.5
S76FL-073-002-3	21-36	A22	0.2	8.3	29.6	24.2	19.7	82.0	14.2	3.8	5.4	1.78	10.2	5.6	1.4
S76FL-073-002-4	36-50	A23	0.4	8.7	29.6	23.5	19.9	82.1	14.1	3.8	2.5	1.93	9.7	5.6	1.9
S76FL-073-002-5	50-63	B21t	0.3	6.5	26.2	22.0	18.7	73.7	14.1	12.2	0.5	1.82	15.6	12.3	6.2
S76FL-073-002-6	63-78	B22t	0.2	5.5	20.2	19.4	17.3	62.6	10.2	27.2	0.5	1.68	20.6	18.4	12.8
S76FL-073-002-7	78-90	C	0.2	5.6	15.9	29.4	30.2	81.3	6.5	12.2	0.8	1.78	16.3	11.8	7.6
Alpin sand:															
S77FL-073-023-1	0-4	A1	0.1	7.1	44.5	40.2	5.4	97.3	0.9	1.8	32.0	1.33	10.3	5.5	2.2
S77FL-073-023-2	4-17	A21	0.1	5.2	26.0	41.5	21.6	94.4	4.2	1.4	51.2	1.43	7.7	4.0	1.5
S77FL-073-023-3	17-40	A22	0.1	5.5	25.3	42.3	21.7	94.9	3.8	1.3	30.9	1.49	5.4	2.8	0.8
S77FL-073-023-4	40-55	A23	0.3	6.0	24.6	41.9	22.7	95.5	3.5	1.0	21.3	1.50	5.4	2.5	0.6
S77FL-073-023-5	55-90	A2&B	0.3	5.1	22.7	44.3	24.2	96.6	2.6	0.8	20.2	1.52	5.3	2.1	0.3
Blanton fine sand:															
S76FL-073-007-1	0-7	Ap	0.1	2.8	15.3	51.2	20.4	89.8	6.7	3.5	12.1	1.51	10.0	6.2	2.5
S76FL-073-007-2	7-18	A12	0.2	2.5	14.5	50.2	21.8	89.2	5.9	4.9	13.3	1.60	8.3	5.1	1.7
S76FL-073-007-3	18-30	A21	0.1	3.4	17.6	51.2	18.3	90.6	4.4	5.0	12.9	1.59	8.7	4.5	1.5
S76FL-073-007-4	30-39	A22	0.2	3.0	15.9	52.1	20.0	91.2	4.2	4.6	29.6	1.54	8.7	5.5	1.3
S76FL-073-007-5	39-52	A23	0.2	3.4	15.5	51.7	21.2	92.0	4.5	3.5	23.0	1.54	9.3	6.3	1.1
S76FL-073-007-6	52-62	B21t	0.1	2.0	9.8	41.7	20.9	74.5	4.5	21.0	1.8	1.74	15.1	12.0	6.9
S76FL-073-007-7	62-82	B22t	0.1	1.3	7.1	41.3	18.4	68.2	2.7	29.1	0.1	1.75	19.1	17.4	11.5
S76FL-073-007-8	82-90	B22t	0.0	0.5	2.5	36.5	30.5	70.0	2.6	27.4	1.8	1.68	20.1	15.9	9.5
Bonifay fine sand:															
S77FL-073-019-1	0-8	Ap	0.1	2.2	12.8	57.4	20.2	92.7	3.2	4.1	4.9	1.49	11.3	6.9	2.7
S77FL-073-019-2	8-18	A21	0.3	2.0	10.5	52.2	23.1	88.1	6.9	5.0	7.2	1.59	9.8	6.3	3.0
S77FL-073-019-3	18-31	A22	0.1	1.9	9.8	53.2	22.8	87.8	5.4	6.8	7.0	1.54	9.6	6.3	3.0
S77FL-073-019-4	31-42	A23	0.2	2.5	10.3	52.3	22.6	87.9	5.1	7.0	9.3	1.54	9.1	5.7	2.7
S77FL-073-019-5	42-53	B21t	0.2	2.1	8.4	44.9	22.3	77.9	4.6	17.5	1.5	1.67	17.5	14.4	8.8
S77FL-073-019-6	53-80	B22t	0.0	0.8	3.8	23.2	25.4	53.2	5.8	41.0	0.3	1.53	24.8	23.0	19.2
Chaires fine sand:															
S77FL-073-020-1	0-7	Ap	0.0	1.2	7.2	63.3	24.9	96.6	2.2	1.2	25.1	1.18	18.5	11.4	4.2
S77FL-073-020-2	7-17	A12	0.0	1.1	7.2	63.1	25.2	96.6	2.7	0.7	10.7	1.53	9.5	4.5	1.9
S77FL-073-020-3	17-28	A2	0.1	1.1	7.0	64.3	24.8	97.3	2.2	0.5	20.2	1.50	9.9	5.8	1.4
S77FL-073-020-4	28-30	B21h	0.0	1.1	6.5	57.7	23.9	89.2	7.8	3.0	1.6	1.53	21.7	14.8	4.7
S77FL-073-020-5	30-35	B22h	0.0	1.1	6.4	60.6	24.8	92.9	4.2	2.9	4.4	1.50	19.0	11.2	2.9
S77FL-073-020-6	35-47	B23h	0.0	1.2	6.6	62.7	24.7	95.2	2.9	1.9	7.9	1.62	15.9	9.6	2.0
S77FL-073-020-7	47-52	B24h	0.0	1.5	6.9	61.6	25.7	95.7	2.9	1.4	10.9	1.58	12.1	6.4	1.9
S77FL-073-020-8	52-54	B25h	0.1	1.5	7.0	61.5	23.3	93.4	3.4	3.2	0.9	1.63	21.0	13.2	2.9
S77FL-073-020-9	54-68	B21tg	0.0	1.0	6.0	38.4	30.6	76.0	2.8	20.2	0.0	1.78	17.4	14.1	6.1
S77FL-073-020-10	68-80	B22tg	0.0	1.0	5.4	36.8	30.2	73.4	3.3	23.3	1.1	1.59	26.0	24.5	18.8

TABLE 17.--PHYSICAL PROPERTIES OF SELECTED SOILS--Continued

Soil series and sample number	Depth	Horizon	Particle size distribution: Sand: Very coarse (2-1 mm)	Coarse (1-0.5 mm)	Medium (0.5-0.25 mm)	Fine (0.25-0.1 mm)	Very fine (0.1-0.05 mm)	Total (2-0.05 mm)	Silt (0.05-0.002 mm)	Clay (<0.002 mm)	Hydraulic conductivity	Bulk density (field moist)	Water content: 1/10 bar	1/3 bar	15 bar
	In		Percent								Cm/hr	Grams/cm	Percent (wt)		
Chipley fine sand:															
S76FL-073-013-1	0-5	A11	0.2	2.2	12.1	53.4	20.4	88.3	8.5	3.2	27.9	1.23	33.2	27.9	4.3
S76FL-073-013-2	5-15	A12	0.1	2.3	12.7	54.7	19.6	89.4	7.5	3.1	7.9	1.44	14.5	10.3	2.3
S76FL-073-013-3	15-23	C1	0.2	2.3	13.2	55.6	18.9	90.2	6.6	3.2	12.3	1.51	13.2	8.5	1.8
S76FL-073-013-4	23-37	C2	0.2	2.3	11.7	55.7	21.2	91.1	5.9	3.0	4.7	1.70	10.3	5.7	1.3
S76FL-073-013-5	37-47	C3	0.3	2.4	11.7	55.8	20.0	90.2	5.4	4.4	2.0	1.79	12.3	7.4	1.9
S76FL-073-013-6	47-66	C4	0.2	2.0	10.4	57.1	19.8	89.5	4.7	5.8	5.3	1.73	12.7	6.7	1.7
S76FL-073-013-7	66-70	C5	0.2	1.8	10.6	60.9	19.8	93.3	4.3	2.4	---	---	---	---	---
S76FL-073-013-8	70-80	C6	0.1	1.5	9.4	62.3	24.0	97.3	2.3	0.4	---	---	---	---	---
Foxworth sand:															
S77FL-073-024-1	0-4	A1	0.0	7.6	73.3	12.9	1.0	94.8	3.9	1.3	192.5	1.24	6.1	4.5	1.1
S77FL-073-024-2	4-9	C1	0.1	6.5	70.5	15.1	1.4	93.6	4.8	1.6	140.5	1.43	6.5	4.4	0.8
S77FL-073-024-3	9-36	C2	0.1	7.3	72.3	13.0	1.0	93.7	4.6	1.7	107.9	1.61	4.4	3.0	0.6
S77FL-073-024-4	36-46	C3	0.1	7.0	67.4	17.9	1.4	93.8	4.9	1.3	90.8	1.52	5.5	3.9	1.0
S77FL-073-024-5	46-54	C4	0.0	5.8	69.6	18.1	1.4	94.6	4.6	0.8	46.0	1.59	6.0	4.9	1.0
S77FL-073-024-6	54-64	C5	0.1	7.3	70.6	15.5	0.9	94.4	4.6	1.0	41.1	1.61	9.0	8.0	2.7
S77FL-073-024-7	64-80	C6	0.0	5.8	77.7	8.9	0.5	92.9	5.0	2.1	74.5	1.57	6.6	5.3	1.6
Fuquay fine sand:															
S77FL-073-025-1	0-7	A1	0.1	1.6	14.7	60.4	12.2	89.0	5.9	5.1	24.3	1.32	12.7	8.0	3.9
S77FL-073-025-2	7-14	A21	0.1	1.9	13.9	56.4	16.4	88.7	6.5	4.8	15.7	1.45	9.5	6.0	3.1
S77FL-073-025-3	14-21	A22	0.1	1.8	13.6	56.8	16.2	88.5	6.0	5.5	29.6	1.38	8.9	5.6	2.6
S77FL-073-025-4	21-37	A23	0.1	1.9	14.1	55.3	15.9	87.3	5.5	7.2	30.9	1.44	8.2	5.3	2.9
S77FL-073-025-5	37-49	B21t	0.2	1.8	11.4	41.8	14.8	70.0	5.1	24.9	2.0	1.59	18.9	16.2	10.9
S77FL-073-025-6	49-64	B22t	0.0	1.2	10.4	38.6	11.8	62.0	3.8	34.2	0.3	1.60	21.2	18.9	12.8
S77FL-073-025-7	64-80	B23t	0.0	1.0	9.2	36.0	11.0	57.2	4.3	38.5	0.1	1.64	19.9	18.5	13.7
Kershaw sand:															
S77FL-073-016-1	0-7	A1	0.2	6.2	26.6	41.5	19.1	93.6	4.9	1.5	63.8	1.31	6.6	4.7	2.0
S77FL-073-016-2	7-11	C1	0.2	8.1	42.2	41.1	5.3	96.9	1.6	1.5	39.8	1.53	5.1	3.6	1.4
S77FL-073-016-3	11-21	C2	0.2	7.7	41.4	41.4	5.9	96.6	1.8	1.6	54.5	1.53	4.1	2.9	1.0
S77FL-073-016-4	21-44	C3	0.2	8.5	41.6	41.0	5.5	96.8	1.6	1.6	56.5	1.52	3.8	2.5	0.9
S77FL-073-016-5	44-63	C4	0.3	8.3	41.1	42.2	6.0	97.9	1.1	1.0	56.5	1.49	3.2	2.3	0.6
S77FL-073-016-6	63-80	C5	0.4	8.6	43.7	40.9	5.3	98.9	0.4	0.7	57.8	1.49	2.2	1.3	0.5
Lakeland sand:															
S77FL-073-015-1	0-5	A	0.2	9.2	49.7	30.4	5.5	95.0	2.0	3.0	149.0	0.99	13.1	6.4	4.4
S77FL-073-015-2	5-20	C1	0.3	8.6	47.0	31.1	7.1	94.1	3.1	2.8	47.9	1.50	6.4	4.7	2.3
S77FL-073-015-3	20-32	C2	0.3	10.0	47.1	30.9	5.3	93.6	3.5	2.9	43.0	1.53	5.4	4.0	2.0
S77FL-073-015-4	32-41	C3	0.3	8.5	47.2	32.3	5.6	93.9	3.2	2.9	51.9	1.57	4.8	3.6	1.8
S77FL-073-015-5	41-78	C4	0.7	8.8	43.9	34.2	7.0	94.6	2.0	3.4	61.1	1.54	4.3	3.2	1.6
S77FL-073-015-6	78-90	C5	0.4	7.0	41.4	38.6	7.3	94.7	1.7	3.6	53.3	1.58	5.7	4.6	2.1

TABLE 17.--PHYSICAL PROPERTIES OF SELECTED SOILS--Continued

Soil series and sample number	Depth	Horizon	Particle size distribution: Sand: Very coarse (2-1 mm)	Coarse (1-0.5 mm)	Medium (0.5-0.25 mm)	Fine (0.25-0.1 mm)	Very fine (0.1-0.05 mm)	Total (2-0.05 mm)	Silt (0.05-0.002 mm)	Clay (<0.002 mm)	Hydraulic conductivity	Bulk density (field moist)	Water content: 1/10 bar	1/3 bar	15 bar
	In		Percent								Cm/hr	Grams/cm	Percent (wt)		
Leefield loamy sand															
S77FL-073-017-1	0-10	Ap	0.3	5.5	18.7	43.8	14.0	82.3	9.3	8.4	19.0	1.33	16.6	13.4	6.5
S77FL-073-017-2	10-19	A21	0.5	5.2	19.3	44.7	13.7	83.4	8.7	7.9	24.0	1.32	12.6	9.3	4.8
S77FL-073-017-3	19-23	A22	0.6	6.1	20.4	44.0	13.3	84.4	7.8	7.8	31.5	1.38	11.5	8.4	4.1
S77FL-073-017-4	23-36	A23	0.6	5.6	19.7	43.9	14.1	83.9	7.4	8.7	28.3	1.45	11.1	8.1	4.0
S77FL-073-017-5	36-51	B21t	0.5	4.7	15.2	35.8	13.5	69.7	6.3	24.0	7.7	1.43	20.6	17.7	10.2
S77FL-073-017-6	51-90	B22t	0.6	5.2	16.6	33.6	12.2	68.2	5.4	26.4	5.0	1.61	20.7	18.7	10.9
Leon sand:															
S77FL-073-028-1	0-6	A1	0.2	6.7	33.0	44.9	10.4	95.2	3.8	1.0	50.0	1.26	10.9	7.7	2.3
S77FL-073-028-2	6-13	A21	0.2	7.4	36.7	42.1	8.6	95.0	4.8	0.2	19.3	1.58	4.5	2.7	0.6
S77FL-073-028-3	13-25	A22	0.2	6.6	32.1	45.3	10.3	94.5	5.5	0.0	20.2	1.55	8.4	1.4	0.6
S77FL-073-028-4	25-29	B21h	0.2	7.6	30.3	40.2	9.2	87.5	6.7	5.8	9.2	1.53	12.4	9.8	3.8
S77FL-073-028-5	29-36	B22h	0.3	11.3	44.4	28.5	4.9	89.4	6.3	4.3	19.7	1.37	13.6	11.3	5.5
S77FL-073-028-6	36-41	B23h	0.3	6.6	32.1	42.2	9.4	90.6	5.9	3.5	11.2	1.54	10.2	7.9	3.6
S77FL-073-028-7	41-50	B31	0.2	6.4	30.5	44.4	10.2	91.8	5.0	3.2	18.4	1.60	7.7	5.5	2.3
S77FL-073-028-8	50-80	B32	0.3	6.3	29.7	45.7	11.9	93.9	4.6	1.5	24.9	1.62	5.8	3.8	1.1
Lucy fine sand:															
S76FL-073-006-1	0-5	Ap	0.1	1.3	7.2	51.1	30.1	89.8	6.3	3.9	7.0	1.56	11.0	5.8	2.2
S76FL-073-006-2	5-13	A12	0.1	1.6	7.6	50.4	29.0	88.7	5.8	5.5	7.4	1.56	9.6	5.7	2.2
S76FL-073-006-3	13-22	A21	0.1	1.1	6.7	52.8	29.1	89.8	4.2	6.0	11.0	1.57	9.0	4.9	1.9
S76FL-073-006-4	22-30	A22	0.0	1.2	6.1	51.1	30.2	88.6	4.6	6.8	4.9	1.63	11.7	7.5	3.9
S76FL-073-006-5	30-36	B21t	0.1	1.0	5.3	46.5	26.9	79.8	3.9	16.3	6.4	1.57	13.2	9.4	5.6
S76FL-073-006-6	36-56	B22t	0.1	1.0	4.9	41.6	21.0	68.6	3.6	27.8	1.0	1.66	21.0	16.9	11.4
S76FL-073-006-7	56-75	B22t	0.1	0.6	3.3	43.1	21.0	68.1	2.5	29.4	2.1	1.68	20.7	18.0	11.9
S76FL-073-006-8	75-90	B3	0.0	0.2	0.9	55.3	22.5	78.9	1.3	19.8	0.4	1.61	19.6	15.3	8.9
Lutterloh fine sand:															
S77FL-073-022-1	0-7	Ap	0.1	0.6	2.7	71.4	21.4	96.2	1.9	1.9	26.9	1.33	9.0	4.3	1.7
S77FL-073-022-2	7-24	A21	0.0	0.5	2.4	50.7	41.2	94.8	3.6	1.6	28.0	1.45	9.3	4.4	1.1
S77FL-073-022-3	24-40	A22	0.0	0.4	2.4	56.6	36.3	95.7	3.0	1.3	26.1	1.38	7.8	3.2	0.7
S77FL-073-022-4	40-59	A23	0.1	0.4	2.2	58.1	36.9	97.7	1.7	0.6	21.9	1.54	8.8	2.9	0.8
S77FL-073-022-5	59-71	B21tg	0.0	0.4	2.4	43.0	35.4	81.2	4.4	14.4	1.3	1.67	20.8	19.1	10.6
S77FL-073-022-6	71-90	IIB22tg	0.0	0.6	3.0	38.8	34.0	76.4	3.4	20.2	1.6	1.71	20.7	18.9	10.6
Meggett very fine sandy loam:															
S77FL-073-031-1	0-6	A1	0.0	0.3	1.4	17.2	38.6	57.5	27.1	15.4	0.1	1.43	27.4	22.2	8.5
S77FL-073-031-2	6-12	A2g	0.0	0.2	1.0	13.0	32.4	46.6	31.6	21.8	0.4	1.57	21.4	19.0	10.5
S77FL-073-031-3	12-28	B21tg	0.0	0.2	0.6	7.8	17.8	26.4	22.2	51.4	2.4	1.38	34.7	33.9	22.9
S77FL-073-031-4	28-35	B22tg	0.0	0.2	0.6	8.2	18.6	27.6	24.2	48.2	1.0	1.47	31.6	31.4	20.8
S77FL-073-031-5	35-50	B23tg	0.0	0.2	1.0	10.2	20.0	31.4	23.8	44.8	1.9	1.56	28.2	27.6	17.3
S77FL-073-031-6	50-64	B31g	0.0	0.2	0.8	14.8	23.8	39.6	24.8	35.6	0.2	1.59	24.9	23.4	19.9
S77FL-073-031-7	64-80	B32g	0.0	0.0	0.6	17.0	24.4	42.0	22.7	35.3	0.0	1.63	25.6	24.7	20.3

TABLE 17.--PHYSICAL PROPERTIES OF SELECTED SOILS--Continued

Soil series and sample number	Depth	Horizon	Particle size distribution: Sand: Very coarse (2-1 mm)	Coarse (1-0.5 mm)	Medium (0.5-0.25 mm)	Fine (0.25-0.1 mm)	Very fine (0.1-0.05 mm)	Total (2-0.05 mm)	Silt (0.05-0.002 mm)	Clay (<0.002 mm)	Hydraulic conductivity	Bulk density (field moist)	Water content: 1/10 bar	1/3 bar	15 bar
	In		Percent								Cm/hr	Grams/cm	Percent (wt)		
Norfolk loamy fine sand:															
S76FL-073-004-1	0-4	A1	0.1	1.8	14.1	49.7	17.2	82.9	10.7	6.4	33.5	1.38	11.7	7.1	3.1
S76FL-073-004-2	4-8	A2	0.1	2.1	14.1	50.9	17.8	85.0	7.1	7.9	21.6	1.42	9.6	6.3	3.0
S76FL-073-004-3	8-15	B21t	0.1	1.8	12.8	48.4	17.7	80.8	7.1	12.1	10.8	1.52	10.8	7.5	4.1
S76FL-073-004-4	15-31	B22t	0.1	1.6	8.8	35.8	14.6	60.9	5.5	33.6	10.8	1.48	20.9	17.6	11.1
S76FL-073-004-5	31-44	B23t	0.1	1.4	8.6	35.9	14.4	60.4	5.6	34.0	1.3	1.64	18.2	15.5	9.7
S76FL-073-004-6	44-58	B24t	0.1	1.8	11.1	38.4	14.1	65.5	3.1	31.4	3.3	1.61	20.7	18.4	11.9
S76FL-073-004-7	58-68	B3	0.2	1.5	10.0	35.0	13.0	59.7	2.6	37.7	0.1	1.67	20.6	18.4	12.2
S76FL-073-004-8	68-80	C	0.1	1.1	8.8	33.3	12.5	55.8	2.5	41.7	0.8	1.66	20.4	18.8	14.4
Norfolk loamy sand clayey substratum															
S76FL-073-009-1	0-7	Ap	0.3	4.3	27.1	43.0	10.2	84.9	6.3	8.8	3.4	1.59	11.9	8.0	5.2
S76FL-073-009-2	7-14	B21t	0.1	2.7	23.8	41.5	10.0	78.1	8.2	13.7	3.9	1.65	10.3	10.2	6.1
S76FL-073-009-3	14-29	B22t	0.1	2.6	20.5	35.9	9.1	68.2	6.8	25.0	1.2	1.58	17.6	14.9	10.9
S76FL-073-009-4	29-51	B23t	0.2	2.6	20.5	36.2	9.0	68.5	5.1	26.4	0.5	1.73	17.3	15.4	10.2
S76FL-073-009-5	51-59	B24t	0.2	2.7	20.0	32.5	7.5	62.9	5.3	31.8	0.0	1.75	18.6	17.1	12.3
S76FL-073-009-6	59-64	B25t	0.2	2.6	20.2	31.2	7.2	61.4	6.7	31.9	0.1	1.76	19.5	18.2	12.5
S76FL-073-009-7	64-80	IIC	0.0	0.2	0.6	3.4	3.4	7.6	20.0	72.4	5.8	1.32	30.0	27.6	24.3
Ocilla fine sand:															
S77FL-073-026-1	0-3	A1	0.1	2.6	13.5	55.2	17.4	88.8	7.5	3.7	---	---	---	---	---
S77FL-073-026-2	3-6	A21	0.2	2.7	13.9	54.2	16.4	87.4	9.0	3.6	25.4	1.38	11.2	7.7	2.4
S77FL-073-026-3	6-22	A22	0.1	2.8	14.0	54.3	15.3	86.5	8.8	4.7	17.5	1.52	10.3	7.2	2.5
S77FL-073-026-4	22-29	B1	0.1	2.4	13.5	51.1	15.2	82.3	9.3	8.4	18.0	1.44	10.6	7.2	2.3
S77FL-073-026-5	29-39	B21t	0.2	2.8	13.0	45.0	7.4	68.4	17.0	14.6	5.4	1.59	15.5	12.6	4.5
S77FL-073-026-6	39-56	B22tg	0.2	2.4	11.4	42.0	12.6	68.6	11.3	20.1	1.7	1.67	17.3	15.5	8.5
S77FL-073-026-7	56-80	B23tg	0.2	1.8	8.8	33.4	11.0	55.2	14.2	30.6	0.7	1.62	21.5	20.8	12.7
Orangeburg fine sandy loam:															
S76FL-073-008-1	0-5	A1	0.3	5.0	21.9	39.3	8.3	75.4	11.0	13.6	27.0	1.42	15.4	12.1	6.6
S76FL-073-008-2	5-10	B1t	0.4	5.7	22.8	38.1	7.6	74.6	8.4	17.0	7.0	1.58	15.0	11.8	7.3
S76FL-073-008-3	10-16	B21t	0.4	5.0	21.3	34.3	7.0	68.0	5.5	26.5	5.9	1.50	22.1	13.7	8.1
S76FL-073-008-4	16-41	B22t	0.3	4.3	17.8	33.3	7.6	63.3	7.6	29.1	3.5	1.53	19.6	15.6	9.2
S76FL-073-008-5	41-62	B23t	0.5	4.5	18.7	30.7	6.1	60.5	2.9	36.6	7.9	1.71	19.2	16.6	11.3
S76FL-073-008-6	62-80	B23t	0.6	5.2	20.3	30.9	5.8	62.8	2.3	34.9	1.8	1.71	18.0	15.5	10.5
Ortega sand:															
S76FL-073-003-1	0-4	A1	0.1	3.6	28.7	46.5	13.9	92.8	4.9	2.3	41.4	1.39	8.4	5.3	2.2
S76FL-073-003-2	4-10	C1	0.2	3.9	30.3	47.4	13.4	99.1	0.5	0.4	16.1	1.55	5.8	3.3	1.3
S76FL-073-003-3	10-28	C2	0.2	3.9	29.0	48.0	14.3	95.4	2.4	2.2	33.5	1.53	5.7	3.0	1.3
S76FL-073-003-4	28-44	C3	0.2	3.7	27.8	49.5	14.5	95.7	1.9	2.4	34.2	1.58	4.7	2.5	0.9
S76FL-073-003-5	44-58	C4	0.2	4.2	28.0	49.9	14.2	96.5	1.9	1.6	35.5	1.52	4.0	2.2	0.7
S76FL-073-003-6	58-72	C5	0.2	4.0	27.8	50.2	14.8	97.0	2.0	1.0	33.5	1.51	5.1	2.7	0.6
S76FL-073-003-7	72-96	C6	0.1	2.9	23.7	54.5	17.1	98.3	1.1	0.6	30.9	1.51	3.5	1.8	0.4

TABLE 17.--PHYSICAL PROPERTIES OF SELECTED SOILS--Continued

Soil series and sample number	Depth	Horizon	Very coarse sand (2-1 mm)	Coarse sand (1-0.5 mm)	Medium sand (0.5-0.25 mm)	Fine sand (0.25-0.1 mm)	Very fine sand (0.1-0.05 mm)	Total sand (2-0.05 mm)	Silt (0.05-0.002 mm)	Clay (<0.002 mm)	Hydraulic conductivity	Bulk density (field moist)	Water content 1/10 bar	Water content 1/3 bar	Water content 15 bar
	In		- - Percent - -								Cm/hr	Grams/cm	- Percent (wt) -		
Pelham fine sand:															
S77FL-073-029-1	0-5	A1	0.0	0.9	7.7	57.7	22.4	88.7	5.4	5.9	10.5	1.09	32.0	24.7	8.8
S77FL-073-029-2	5-12	A21	0.0	1.0	8.0	61.3	19.1	89.4	7.2	3.4	3.3	1.55	14.6	9.4	3.0
S77FL-073-029-3	12-21	A22	0.1	0.9	8.1	61.1	20.9	91.1	5.9	3.0	12.5	1.59	10.9	6.2	2.0
S77FL-073-029-4	21-26	A23	0.0	1.0	9.6	57.8	23.0	91.4	6.2	2.4	14.8	1.61	8.7	4.7	1.2
S77FL-073-029-5	26-32	B21tg	0.0	0.6	5.8	40.8	19.4	66.6	6.7	26.7	0.9	1.75	18.6	16.9	12.3
S77FL-073-029-6	32-54	B22tg	0.0	0.6	5.2	41.4	20.6	67.8	0.0	32.2	0.4	1.70	14.9	16.0	10.4
S77FL-073-029-7	54-80	B22tg	0.0	0.4	4.8	41.4	20.8	67.4	4.2	28.4	0.1	1.74	17.9	16.7	11.7
Plummer fine sand:															
S76FL-073-010-1	0-6	A11	0.1	2.3	18.3	55.1	14.3	90.1	6.8	3.1	7.0	1.29	32.0	30.4	26.7
S76FL-073-010-2	6-17	A12	0.0	2.5	19.9	55.2	13.2	90.8	6.1	3.1	9.7	1.60	7.2	4.7	1.5
S76FL-073-010-3	17-28	A21g	0.0	2.7	21.2	52.0	12.6	88.5	6.3	5.2	8.7	1.78	8.4	5.4	2.0
S76FL-073-010-4	28-36	A22g	0.1	2.4	20.3	53.5	13.1	89.4	6.0	4.6	8.4	1.69	10.3	6.3	2.6
S76FL-073-010-5	36-60	A23g	0.1	2.7	20.3	55.9	14.3	93.3	4.9	1.8	8.1	1.74	6.4	3.2	0.7
S76FL-073-010-6	60-61	A23g	0.1	2.7	20.3	53.2	13.0	89.3	4.8	5.9	---	---	---	---	---
S76FL-073-010-7	61-80	B2tg	0.0	2.4	17.6	47.8	12.1	79.9	4.5	15.6	0.2	1.86	13.1	9.7	5.9
Rutlege loamy fine sand:															
S77FL-073-014-1	0-5	A11	0.7	5.2	18.3	45.9	15.5	85.6	10.3	4.1	---	---	---	---	---
S77FL-073-014-2	5-23	A12	0.7	5.6	19.2	45.8	16.0	87.3	9.1	3.6	14.7	1.37	14.8	9.9	3.6
S77FL-073-014-3	23-32	C1	0.7	6.4	20.0	46.9	15.4	89.4	7.0	3.6	11.5	1.46	11.8	8.2	3.0
S77FL-073-014-4	32-57	C2	1.1	6.0	17.5	48.4	15.7	88.7	5.7	5.6	5.5	1.67	13.3	10.5	2.8
S77FL-073-014-5	57-62	C3	1.2	6.7	17.6	48.9	15.9	90.3	5.1	4.6	---	---	---	---	---
S77FL-073-014-6	62-82	C4	0.9	5.2	17.3	53.0	17.2	93.6	4.0	2.4	---	---	---	---	---
Sapelo fine sand:															
S77FL-073-018-1	0-6	Ap	0.2	2.6	11.1	53.4	24.0	91.3	7.1	1.6	21.4	1.31	11.2	6.7	2.4
S77FL-073-018-2	6-14	A2	0.2	3.0	11.3	51.7	26.4	92.6	6.7	0.7	14.4	1.44	7.1	3.2	1.2
S77FL-073-018-3	14-16	B21h	0.2	2.4	10.8	48.7	24.3	86.4	8.1	5.5	8.8	1.33	15.1	11.5	5.5
S77FL-073-018-4	16-22	B22h	0.3	2.7	11.3	50.0	23.1	87.4	7.8	4.8	27.8	1.58	10.6	6.4	1.8
S77FL-073-018-5	22-26	B3	0.2	2.7	10.9	51.4	24.5	89.7	7.2	3.1	6.9	1.62	9.3	5.2	2.4
S77FL-073-018-6	26-33	A'21	0.5	3.5	11.5	50.3	26.2	92.0	5.4	2.6	6.2	1.59	13.4	8.9	2.9
S77FL-073-018-7	33-40	A'22	0.4	3.7	12.5	49.8	24.7	91.1	5.6	3.3	8.4	1.51	20.4	14.8	4.3
S77FL-073-018-8	40-43	A'22	0.3	3.0	11.8	50.6	23.4	89.1	8.5	2.4	4.5	1.65	12.1	7.6	3.3
S77FL-073-018-9	43-80	B'2tg	0.4	3.7	12.2	44.2	19.3	79.8	6.0	14.2	0.3	1.86	13.1	10.6	6.0
Talquin fine sand:															
S77FL-073-021-1	0-10	Ap	0.0	0.2	1.5	69.2	26.2	97.1	2.5	0.4	19.5	1.38	8.5	3.5	1.9
S77FL-073-021-2	10-25	A2	0.0	0.2	1.5	63.1	31.9	96.7	2.8	0.5	21.2	1.49	7.9	3.5	1.5
S77FL-073-021-3	25-27	B21h	0.0	0.2	1.3	51.0	39.9	92.4	5.2	2.4	5.1	1.60	15.7	9.3	2.7
S77FL-073-021-4	27-37	B22h	0.0	0.2	1.3	54.5	40.1	96.1	2.7	1.2	15.4	1.63	13.8	5.6	1.4
S77FL-073-021-5	37-80	C	0.0	0.3	1.5	61.7	35.2	98.7	0.6	0.7	19.0	1.60	9.9	4.0	0.9

TABLE 17.--PHYSICAL PROPERTIES OF SELECTED SOILS--Continued

Soil series and sample number	Depth	Horizon	Particle size distribution: Sand: Very coarse (2-1 mm)	Coarse (1-0.5 mm)	Medium (0.5-0.25 mm)	Fine (0.25-0.1 mm)	Very fine (0.1-0.05 mm)	Total (2-0.05 mm)	Silt (0.05-0.002 mm)	Clay (<0.002 mm)	Hydraulic conductivity	Bulk density (field moist)	Water content: 1/10 bar	1/3 bar	15 bar
	In		Percent								Cm/hr	Grams/cm	percent (wt)		
Troup fine sand:															
S76FL-073-005-1	0-8	Ap	0.1	1.6	8.4	52.2	26.8	89.1	7.5	3.4	5.3	1.57	10.2	5.9	2.0
S76FL-073-005-2	8-19	A21	0.1	1.1	6.8	51.8	29.9	89.7	5.7	4.6	7.2	1.54	8.5	4.8	2.0
S76FL-073-005-3	19-26	A22	0.1	1.3	7.6	53.0	26.3	88.3	5.0	6.7	7.7	1.58	9.2	5.3	2.0
S76FL-073-005-4	26-44	A23	0.1	1.4	7.5	51.6	27.7	88.3	4.1	7.0	7.2	1.58	8.9	5.1	1.9
S76FL-073-005-5	44-54	B21t	0.1	1.1	6.0	48.9	22.2	78.3	3.9	17.8	1.1	1.66	17.4	14.7	8.7
S76FL-073-005-6	54-73	B22t	0.0	0.9	5.1	40.6	24.2	70.8	2.6	26.6	0.7	1.68	19.4	16.8	10.5
S76FL-073-005-7	73-80	B23t	0.0	0.4	3.3	33.9	27.5	65.1	1.6	33.3	0.6	1.67	21.6	19.4	12.6
Wagram loamy fine sand:															
S76FL-073-012-1	0-3	A1	0.0	1.5	13.9	51.5	18.0	84.9	11.4	3.7	---	---	---	---	---
S76FL-073-012-2	3-9	A21	0.0	1.6	14.7	52.0	17.3	85.6	9.0	5.4	16.7	1.45	11.6	6.9	3.9
S76FL-073-012-3	9-19	A22	0.0	1.4	13.9	53.0	15.7	84.0	8.6	7.4	28.3	1.41	14.3	10.7	3.6
S76FL-073-012-4	19-31	A23	0.0	1.5	13.9	51.0	17.9	84.3	8.2	7.5	21.3	1.56	9.6	6.4	3.1
S76FL-073-012-5	31-43	B21t	0.1	1.3	11.3	44.9	16.9	74.5	7.4	18.1	2.4	1.65	15.5	12.1	7.0
S76FL-073-012-6	43-52	B22t	0.0	1.4	11.0	41.4	15.6	69.4	6.2	24.4	0.1	1.76	18.5	15.8	10.2
S76FL-073-012-7	52-62	B23t	0.0	1.2	9.9	37.2	13.9	62.2	5.0	32.8	0.2	1.67	20.9	18.4	12.7
S76FL-073-012-8	62-80	C	0.0	1.0	9.8	34.2	11.6	56.6	3.7	39.7	1.1	1.61	41.5	39.5	15.5
Yonges fine sandy loam:															
S76FL-073-011-1	0-5	A1	0.1	1.5	8.1	34.4	14.1	58.2	32.3	9.5	0.9	1.38	30.3	23.8	6.7
S76FL-073-011-2	5-9	A2	0.3	2.8	13.2	51.6	19.8	87.7	11.2	1.1	1.4	1.65	11.2	6.3	2.0
S76FL-073-011-3	9-24	B21tg	0.3	1.7	7.2	32.9	14.3	56.4	12.8	30.8	0.0	1.58	28.4	26.5	22.0
S76FL-073-011-4	24-53	B22tg	0.2	1.8	8.8	41.3	14.8	66.9	10.4	22.7	0.0	1.74	19.5	18.3	15.4
S76FL-073-011-5	53-71	B23tg	0.0	0.3	6.0	64.8	2.1	73.2	4.5	22.3	0.0	1.40	34.8	31.7	23.0
S76FL-073-011-6	71-80	B3g	0.0	0.1	3.7	61.0	2.4	67.2	4.2	28.6	0.0	1.17	47.4	43.6	30.0

TABLE 18.--CHEMICAL PROPERTIES OF SELECTED SOILS

Soil series and sample number	Depth	Horizon	Extractable bases: Ca	Extractable bases: Mg	Extractable bases: Na	Extractable bases: K	Extractable bases: Sum	Ex-tract-able acidity	Sum cat-ions	Base satura-tion	Organic carbon	Elec-trical conduc-tivity	pH: H_2O (1:1)	pH: $CaCl_2$ .01M (1:2)	pH: KCl 1N (1:1)	Extractable citrate dithionite: Al	Extractable citrate dithionite: Fe
	In		- - Milliequivalents per 100 grams - - -							Percent	Percent	Mmho/cm				- Percent -	
Albany loamy sand:																	
S76FL-073-002-1	0-4	A1	0.08	0.07	0.02	0.02	0.19	8.00	8.19	2	1.10	0.05	4.3	3.5	3.3	0.04	0.08
S76FL-073-002-2	4-21	A21	0.01	0.01	0.00	0.00	0.02	1.82	1.84	1	0.20	0.04	5.2	4.7	4.5	0.06	0.10
S76FL-073-002-3	21-36	A22	0.02	0.02	0.01	0.00	0.05	1.17	1.22	4	0.04	0.02	5.2	4.5	4.3	0.06	0.13
S76FL-073-002-4	36-50	A23	0.13	0.04	0.00	0.00	0.17	1.17	1.34	13	0.01	0.02	5.3	4.8	4.3	0.08	0.24
S76FL-073-002-5	50-63	B21t	0.04	0.10	0.01	0.01	0.16	3.90	4.06	4	0.04	0.01	5.2	4.2	3.9	0.16	0.63
S76FL-073-002-6	63-78	B22t	0.06	0.24	0.01	0.01	0.32	6.83	7.15	4	0.04	0.01	5.1	4.1	3.7	0.21	1.24
S76FL-073-002-7	78-90	C	0.04	0.14	0.00	0.00	0.18	3.51	3.69	5	0.02	0.01	5.2	4.2	3.8	0.06	0.14
Alpin sand:																	
S77FL-073-023-1	0-4	A1	0.43	0.11	0.00	0.03	0.57	2.85	3.42	17	0.73	0.05	4.9	4.0	3.8	---	---
S77FL-073-023-2	4-17	A21	0.14	0.04	0.00	0.01	0.19	2.31	2.50	8	0.31	0.03	5.5	4.6	4.3	---	---
S77FL-073-023-3	17-40	A22	0.03	0.02	0.00	0.01	0.06	0.68	0.74	8	0.12	0.02	5.5	4.6	4.3	---	---
S77FL-073-023-4	40-55	A23	0.02	0.01	0.00	0.01	0.04	0.14	0.18	22	0.06	0.02	5.6	4.7	4.5	---	---
S77FL-073-023-5	55-90	A2&B	0.03	0.02	0.00	0.00	0.05	0.27	0.32	16	0.04	0.01	5.7	4.7	4.7	---	---
Blanton fine sand:																	
S76FL-073-007-1	0-7	Ap	1.79	0.30	0.02	0.04	2.15	6.37	8.52	25	1.26	0.05	5.5	4.8	4.6	0.10	0.10
S76FL-073-007-2	7-18	A12	0.78	0.12	0.00	0.01	0.91	3.41	4.32	21	0.39	0.03	6.0	5.4	4.8	0.10	0.11
S76FL-073-007-3	18-30	A21	0.24	0.03	0.00	0.01	0.28	1.78	2.06	14	0.11	0.02	5.5	4.9	4.4	0.07	0.10
S76FL-073-007-4	30-39	A22	0.18	0.03	0.00	0.00	0.21	1.78	1.99	11	0.07	0.02	5.3	4.5	4.3	0.06	0.11
S76FL-073-007-5	39-52	A23	0.13	0.04	0.00	0.00	0.17	0.89	1.06	16	0.02	0.02	5.3	4.5	4.3	0.04	0.08
S76FL-073-007-6	52-62	B21t	0.58	0.26	0.02	0.05	0.91	6.67	7.58	12	0.08	0.02	4.9	4.1	3.8	0.14	0.49
S76FL-073-007-7	62-82	B22t	0.16	0.65	0.04	0.09	0.94	10.22	11.16	8	0.04	0.02	5.2	3.9	3.7	0.12	0.31
S76FL-073-007-8	82-90	B22t	0.07	0.53	0.03	0.11	0.74	10.67	11.41	6	0.02	0.02	4.9	3.9	3.7	0.11	0.19
Bonifay fine sand:																	
S77FL-073-019-1	0-8	Ap	1.90	0.57	0.01	0.08	2.56	4.10	6.66	38	1.14	0.05	5.9	5.0	4.8	---	---
S77FL-073-019-2	8-18	A21	0.24	0.13	0.02	0.04	0.43	3.97	4.40	10	0.48	0.03	6.1	4.9	4.3	---	---
S77FL-073-019-3	18-31	A22	0.09	0.05	0.02	0.02	0.18	1.75	1.93	9	0.15	0.03	5.3	4.2	4.1	---	---
S77FL-073-019-4	31-42	A23	0.03	0.03	0.02	0.02	0.10	1.55	1.65	6	0.09	0.03	5.0	4.1	4.0	---	---
S77FL-073-019-5	42-53	B21t	0.18	0.18	0.03	0.02	0.41	2.62	3.03	14	0.12	0.02	5.3	4.2	4.1	0.23	1.10
S77FL-073-019-6	53-80	B22t	0.27	0.28	0.06	0.04	0.65	5.75	6.40	10	0.09	0.02	5.1	4.2	3.9	0.40	2.26
Chaires fine sand:																	
S77FL-073-020-1	0-7	Ap	0.62	0.18	0.03	0.04	0.87	6.15	7.02	12	1.22	0.04	4.5	3.3	3.0	---	---
S77FL-073-020-2	7-17	A12	0.27	0.06	0.01	0.02	0.36	1.61	1.97	18	0.44	0.02	4.7	3.3	3.1	---	---
S77FL-073-020-3	17-28	A2	0.07	0.02	0.01	0.00	0.10	0.00	0.10	100	0.07	0.01	5.4	4.1	3.9	---	---
S77FL-073-020-4	28-30	B21h	0.28	0.10	0.16	0.01	0.55	9.58	10.13	5	1.14	0.14	4.4	3.7	3.6	0.10	0.07
S77FL-073-020-5	30-35	B22h	0.10	0.04	0.03	0.01	0.18	11.69	11.87	2	1.17	0.04	4.7	3.9	3.8	0.15	0.07
S77FL-073-020-6	35-47	B23h	0.08	0.04	0.00	0.00	0.12	6.75	6.87	2	0.61	0.02	4.8	3.8	3.8	0.08	0.04
S77FL-073-020-7	47-52	B24h	0.09	0.04	0.00	0.00	0.13	3.83	3.96	3	0.30	0.02	5.0	4.1	4.0	0.06	0.07
S77FL-073-020-8	52-54	B25h	0.31	0.02	0.00	0.01	0.34	9.07	9.41	4	0.85	0.03	4.8	4.0	3.9	0.13	0.05
S77FL-073-020-9	54-68	B21tg	6.04	0.30	0.01	0.15	6.50	8.87	15.37	42	0.28	0.04	5.0	4.1	3.6	0.09	0.06
S77FL-073-020-10	68-80	B22tg	10.94	0.44	0.02	0.33	11.73	8.97	20.70	57	0.14	0.05	5.1	4.2	3.7	0.07	0.08

TABLE 18.--CHEMICAL PROPERTIES OF SELECTED SOILS--Continued

Soil series and sample number	Depth	Horizon	Extractable bases: Ca	Extractable bases: Mg	Extractable bases: Na	Extractable bases: K	Extractable bases: Sum	Extractable acidity	Sum cations	Base saturation	Organic carbon	Electrical conductivity	pH H_2O (1:1)	pH $CaCl_2$ .01M (1:2)	pH KCl 1N (1:1)	Extractable citrate dithionite: Al	Extractable citrate dithionite: Fe
	In		- - Milliequivalents per 100 grams						- - -	Percent	Percent	Mmho/cm				- Percent -	
Chipley fine sand:																	
S76FL-073-013-1	0-5	A11	0.04	0.03	0.06	0.07	0.20	11.26	11.46	2	2.02	0.06	4.7	4.1	3.8	---	---
S76FL-073-013-2	5-15	A12	0.00	0.00	0.02	0.02	0.04	5.95	5.99	1	0.75	0.02	5.3	4.7	4.3	---	---
S76FL-073-013-3	15-23	C1	0.00	0.00	0.03	0.01	0.04	3.86	3.90	1	0.44	0.02	5.3	4.7	4.4	---	---
S76FL-073-013-4	23-37	C2	0.00	0.00	0.00	0.01	0.01	1.61	1.62	1	0.10	0.02	5.6	4.8	4.4	---	---
S76FL-073-013-5	37-47	C3	0.00	0.01	0.00	0.01	0.02	1.61	1.63	1	0.04	0.02	5.0	4.7	4.2	---	---
S76FL-073-013-6	47-66	C4	0.09	0.02	0.02	0.01	0.14	3.38	3.52	4	0.06	0.01	5.2	4.4	4.2	---	---
S76FL-073-013-7	66-70	C5	0.00	0.00	0.02	0.01	0.03	1.93	1.96	2	0.04	0.01	5.8	5.0	4.6	---	---
S76FL-073-013-8	70-80	C6	0.02	0.01	0.01	0.01	0.05	0.19	0.24	21	0.04	0.01	6.4	6.2	6.0	---	---
Foxworth sand:																	
S77FL-073-024-1	0-4	A1	---	0.03	0.00	0.01	---	2.17	---	---	0.47	0.03	5.1	4.1	3.9	---	---
S77FL-073-024-2	4-9	C1	0.03	0.01	0.00	0.00	0.04	2.45	2.49	2	0.40	0.02	5.2	4.4	4.2	---	---
S77FL-073-024-3	9-36	C2	0.01	0.00	0.00	0.00	0.01	1.49	1.50	1	0.16	0.02	5.2	4.5	4.3	---	---
S77FL-073-024-4	36-46	C3	0.00	0.01	0.00	0.00	0.01	0.68	0.69	1	0.11	0.02	5.3	4.5	4.3	---	---
S77FL-073-024-5	46-54	C4	0.01	0.00	0.00	0.00	0.01	0.54	0.55	2	0.07	0.02	6.7	4.7	4.5	---	---
S77FL-073-024-6	54-64	C5	0.00	0.01	0.00	0.00	0.01	0.88	0.89	1	0.07	0.01	6.2	4.7	4.6	---	---
S77FL-073-024-7	64-80	C6	0.00	0.01	0.01	0.00	0.02	1.49	1.51	1	0.15	0.05	5.4	4.6	4.6	0.05	0.13
Fuquay fine sand:																	
S77FL-073-025-1	0-7	A1	1.39	0.52	0.01	0.02	1.94	5.30	7.24	27	1.20	0.04	5.8	4.9	4.7	---	---
S77FL-073-025-2	7-14	A21	0.26	0.15	0.01	0.01	0.43	4.55	4.98	9	0.67	0.02	5.7	4.5	4.3	---	---
S77FL-073-025-3	14-21	A22	0.21	0.17	0.02	0.01	0.41	2.72	3.13	13	0.38	0.03	5.5	4.6	4.3	---	---
S77FL-073-025-4	21-37	A23	0.37	0.22	0.00	0.00	0.59	2.31	2.90	20	0.21	0.02	5.5	4.7	4.4	---	---
S77FL-073-025-5	37-49	B21t	0.49	0.97	0.02	0.01	1.49	4.48	5.97	25	0.24	0.02	5.5	4.6	4.3	0.31	1.15
S77FL-073-025-6	49-64	B22t	0.07	0.53	0.01	0.01	0.62	6.32	6.94	9	0.16	0.02	5.2	4.2	4.0	0.43	1.49
S77FL-073-025-7	64-80	B23t	0.06	0.47	0.13	0.01	0.67	4.08	4.75	14	0.15	0.08	4.9	4.2	3.9	0.40	1.69
Kershaw sand:																	
S77FL-073-016-1	0-7	A1	0.05	0.02	0.01	0.01	0.09	2.56	2.65	3	0.31	0.02	5.3	4.3	4.1	---	---
S77FL-073-016-2	7-11	C1	0.02	0.01	0.01	0.00	0.04	1.59	1.63	2	0.24	0.02	5.5	4.6	4.4	---	---
S77FL-073-016-3	11-21	C2	0.05	0.02	0.02	0.00	0.09	1.45	1.54	6	0.08	0.02	5.6	4.6	4.5	---	---
S77FL-073-016-4	21-44	C3	0.02	0.01	0.01	0.00	0.04	1.32	1.36	3	0.03	0.02	5.9	4.5	4.4	---	---
S77FL-073-016-5	44-63	C4	0.01	0.01	0.00	0.00	0.02	0.90	0.92	2	0.00	0.01	5.9	4.6	4.5	---	---
S77FL-073-016-6	63-80	C5	0.02	0.01	0.01	0.00	0.04	0.62	0.66	6	0.00	0.01	6.1	4.7	4.6	---	---
Lakeland sand:																	
S77FL-073-015-1	0-5	A	0.32	0.10	0.02	0.03	0.47	7.58	8.05	6	1.01	0.04	4.8	3.9	3.8	---	---
S77FL-073-015-2	5-20	C1	0.03	0.02	0.02	0.01	0.08	2.49	2.57	3	0.20	0.03	5.2	4.4	4.3	---	---
S77FL-073-015-3	20-32	C2	0.03	0.04	0.01	0.00	0.08	2.01	2.09	4	0.08	0.02	5.5	4.5	4.3	---	---
S77FL-073-015-4	32-41	C3	0.02	0.02	0.02	0.00	0.06	1.73	1.79	3	0.01	0.02	5.4	4.6	4.3	---	---
S77FL-073-015-5	41-78	C4	0.02	0.02	0.01	0.00	0.05	1.45	1.50	3	0.00	0.02	5.5	4.4	4.2	---	---
S77FL-073-015-6	78-90	C5	0.01	0.04	0.01	0.00	0.06	1.66	1.72	3	0.00	0.02	5.4	4.4	4.3	0.14	0.34
Leefield loamy sand:																	
S77FL-073-017-1	0-10	Ap	1.25	0.09	0.05	0.08	1.47	10.73	12.20	12	1.44	0.06	5.6	4.9	4.5	---	---
S77FL-073-017-2	10-19	A21	0.13	0.03	0.03	0.02	0.21	7.48	7.69	3	0.51	0.04	5.4	4.7	4.4	---	---
S77FL-073-017-3	19-23	A22	0.04	0.01	0.03	0.02	0.10	5.05	5.15	2	0.11	0.04	5.1	4.6	4.4	---	---
S77FL-073-017-4	23-36	A23	0.14	0.02	0.03	0.03	0.22	3.67	3.89	6	0.00	0.04	5.1	4.5	4.3	---	---
S77FL-073-017-5	36-51	B21t	0.78	0.31	0.05	0.04	1.18	6.37	7.55	16	0.00	0.05	5.0	4.3	4.1	0.30	0.94
S77FL-073-017-6	51-90	B22t	0.17	0.15	0.05	0.02	0.39	8.20	8.59	5	0.00	0.03	4.9	4.0	3.8	0.26	0.88

TABLE 18.--CHEMICAL PROPERTIES OF SELECTED SOILS--Continued

Soil series and sample number	Depth	Horizon	Extractable bases					Ex-tract-able acidity	Sum cat-ions	Base satura-tion	Organic carbon	Elec-trical conduc-tivity	pH			Extractable citrate dithionite	
			Ca	Mg	Na	K	Sum						H_2O (1:1)	$CaCl_2$ .01M (1:2)	KCl 1N (1:1)	Al	Fe
	In		- - Milliequivalents per 100 grams - - -							Percent	Percent	Mmho/cm				- Percent -	
Leon Sand:																	
S77FL-073-028-1	0-6	A1	0.41	0.17	0.03	0.04	0.65	10.87	11.52	6	2.26	0.05	4.2	3.2	2.8	---	---
S77FL-073-028-2	6-13	A21	0.02	0.02	0.01	0.01	0.06	1.22	1.28	5	0.26	0.02	4.7	3.6	3.3	---	---
S77FL-073-028-3	13-25	A22	0.01	0.01	0.00	0.00	0.02	0.41	0.43	5	0.18	0.01	4.7	3.7	3.4	---	---
S77FL-073-028-4	25-29	B21h	0.03	0.09	0.03	0.02	0.17	19.61	19.78	1	2.07	0.03	4.4	3.7	3.5	0.27	0.11
S77FL-073-028-5	29-36	B22h	0.01	0.04	0.02	0.01	0.08	21.34	21.42	0.4	1.64	0.02	4.7	4.0	3.8	0.40	0.06
S77FL-073-028-6	36-41	B23h	0.01	0.01	0.01	0.01	0.04	9.89	9.93	0.4	0.87	0.01	5.0	4.3	4.1	0.24	0.03
S77FL-073-028-7	41-50	B31	0.01	0.01	0.01	0.01	0.04	6.91	6.95	1	0.54	0.01	5.1	4.4	4.2	---	---
S77FL-073-028-8	50-80	B32	0.01	0.00	0.00	0.00	0.01	4.61	4.62	0.2	0.45	0.01	4.9	4.5	4.3	---	---
Lucy fine sand:																	
S76FL-073-006-1	0-5	Ap	1.26	0.27	0.00	0.10	1.63	4.00	5.63	29	0.80	0.04	5.8	5.2	4.7	0.08	0.17
S76FL-073-006-2	5-13	A12	0.74	0.10	0.00	0.03	0.87	3.11	3.98	22	0.22	0.03	6.0	5.4	4.7	0.10	0.18
S76FL-073-006-3	13-22	A21	0.37	0.05	0.01	0.01	0.44	2.82	3.26	13	0.18	0.02	5.5	4.9	4.3	0.09	0.19
S76FL-073-006-4	22-30	A22	0.20	0.04	0.00	0.01	0.25	2.52	2.77	9	0.09	0.02	5.4	4.4	4.2	0.10	0.26
S76FL-073-006-5	30-36	B21t	0.47	0.32	0.01	0.02	0.82	5.33	6.15	13	0.15	0.02	5.1	4.2	3.9	0.17	0.65
S76FL-073-006-6	36-56	B22t	0.55	0.57	0.02	0.03	1.17	7.78	8.95	13	0.12	0.02	5.1	4.2	3.8	0.25	1.16
S76FL-073-006-7	56-75	B22t	0.11	0.49	0.01	0.04	0.65	8.44	9.09	7	0.05	0.01	5.2	4.0	3.8	0.22	1.17
S76FL-073-006-8	75-90	B3	0.07	0.45	0.02	0.04	0.58	6.44	7.02	8	0.03	0.02	5.1	3.9	3.8	0.15	0.64
Lutterloh fine sand:																	
S77FL-073-022-1	0-7	Ap	0.20	0.04	0.00	0.02	0.26	3.02	3.28	8	0.57	0.03	5.1	4.3	4.1	---	---
S77FL-073-022-2	7-24	A21	0.16	0.03	0.00	0.01	0.20	1.81	2.01	10	0.18	0.02	5.5	4.7	4.4	---	---
S77FL-073-022-3	24-40	A22	0.06	0.01	0.00	0.01	0.08	0.54	0.62	13	0.04	0.02	5.4	4.6	4.3	---	---
S77FL-073-022-4	40-59	A23	0.03	0.01	0.01	0.00	0.05	0.41	0.46	11	0.00	0.02	5.7	4.9	4.7	---	---
S77FL-073-022-5	59-71	B21tg	2.05	0.85	0.02	0.07	2.99	3.26	6.25	48	0.00	0.02	5.6	4.6	4.0	0.07	0.16
S77FL-073-022-6	71-90	IIB22tg	3.44	1.12	0.02	0.13	4.71	3.19	7.90	60	0.00	0.02	5.5	4.4	3.9	0.07	0.04
Meggett very fine sandy loam:																	
S77FL-073-031-1	0-6	A1	2.66	0.59	0.09	0.07	3.41	12.18	15.59	22	2.07	0.08	5.1	4.2	3.8	---	---
S77FL-073-031-2	6-12	A2g	2.22	0.35	0.09	0.04	2.70	13.60	16.30	17	0.84	0.05	4.8	3.8	3.6	---	---
S77FL-073-031-3	12-28	B21tg	6.89	0.56	0.21	0.10	7.76	22.74	30.50	25	0.33	0.05	4.8	3.8	3.3	0.22	0.98
S77FL-073-031-4	28-35	B22tg	12.88	0.72	0.26	0.10	13.96	27.92	41.88	33	0.24	0.13	4.4	3.8	3.2	0.20	0.92
S77FL-073-031-5	35-50	B23tg	16.63	0.98	0.36	0.09	18.39	15.43	33.82	54	0.16	0.29	4.2	3.8	3.2	0.14	0.72
S77FL-073-031-6	50-64	B31g	19.98	1.25	0.45	0.08	21.76	11.37	33.13	66	0.10	0.35	4.6	4.2	3.6	0.06	0.33
S77FL-073-031-7	64-80	B32g	21.91	1.42	0.50	0.07	23.90	9.14	33.04	72	0.05	0.39	6.2	5.5	5.2	0.06	0.22
Norfolk loamy fine sand:																	
S76FL-073-004-1	0-4	A1	1.37	0.46	0.01	0.07	1.91	5.72	7.63	25	1.29	0.07	5.5	4.9	4.4	0.10	0.19
S76FL-073-004-2	4-8	A2	0.48	0.23	0.00	0.03	0.74	3.90	4.64	16	0.47	0.03	5.5	4.8	4.3	0.10	0.23
S76FL-073-004-3	8-15	B21t	0.46	0.32	0.00	0.02	0.80	3.51	4.31	19	0.28	0.03	5.5	4.8	4.3	0.14	0.34
S76FL-073-004-4	15-31	B22t	0.36	0.59	0.01	0.04	1.00	8.39	9.39	11	0.25	0.02	5.1	4.3	3.9	0.32	1.00
S76FL-073-004-5	31-44	B23t	0.14	0.25	0.02	0.03	0.44	6.44	6.88	6	0.12	0.02	5.1	4.2	3.9	0.28	0.93
S76FL-073-004-6	44-58	B24t	0.06	0.31	0.03	0.02	0.42	7.02	7.44	6	0.06	0.02	5.0	4.3	3.9	0.32	1.20
S76FL-073-004-7	58-68	B3	0.06	0.33	0.07	0.02	0.48	6.63	7.11	7	0.05	0.04	5.0	4.2	3.9	0.28	1.34
S76FL-073-004-8	68-80	C	0.07	0.39	0.08	0.01	0.55	6.76	7.31	8	0.06	0.05	4.9	4.1	4.0	0.24	1.42

TABLE 18.--CHEMICAL PROPERTIES OF SELECTED SOILS--Continued

Soil series and sample number	Depth	Horizon	Extractable bases: Ca	Extractable bases: Mg	Extractable bases: Na	Extractable bases: K	Extractable bases: Sum	Ex- tract- able acidity	Sum cat- ions	Base satura- tion	Organic carbon	Elec- trical conduc- tivity	pH: H_2O (1:1)	pH: $CaCl_2$ .01M (1:2)	pH: KCl 1N (1:1)	Extractable citrate dithionite: Al	Extractable citrate dithionite: Fe
	In		- - Milliequivalents per 100 grams - - -							Percent	Percent	Mmho/cm				- Percent -	
Norfolk loamy sand clay substratum:																	
S76FL-073-009-1	0-7	Ap	2.90	1.10	0.06	0.11	4.17	4.43	8.60	48	0.95	0.09	6.4	5.9	5.6	0.14	0.32
S76FL-073-009-2	7-14	B21t	0.29	0.35	0.00	0.04	0.68	6.75	7.43	9	0.40	0.02	5.2	4.4	4.2	0.18	0.44
S76FL-073-009-3	14-29	B22t	1.51	0.55	0.02	0.04	2.12	7.07	9.19	23	0.19	0.04	5.2	4.5	4.1	0.24	0.85
S76FL-073-009-4	29-51	B23t	1.68	0.88	0.03	0.02	2.61	6.11	8.72	30	0.12	0.04	5.4	4.7	4.2	0.23	0.96
S76FL-073-009-5	51-59	B24t	1.01	0.64	0.03	0.02	1.70	8.11	9.81	17	0.08	0.03	5.1	5.2	3.8	0.21	1.32
S76FL-073-009-6	59-64	B25g	0.89	0.67	0.02	0.02	1.60	8.56	10.16	16	0.08	0.02	5.2	4.1	3.7	0.19	1.44
S76FL-073-009-7	64-80	IIC	0.40	5.02	0.16	0.36	5.94	56.92	62.86	9	0.08	0.21	4.4	3.7	3.2	0.65	2.42
Ocilla fine sand:																	
S77FL-073-026-1	0-3	A1	0.31	0.14	0.04	0.04	0.53	11.59	12.12	4	2.27	0.07	4.4	3.7	3.2	---	---
S77FL-073-026-2	3-6	A21	0.05	0.03	0.01	0.01	0.10	4.40	4.50	2	0.64	0.03	4.9	4.2	4.0	---	---
S77FL-073-026-3	6-22	A22	0.01	0.01	0.00	0.01	0.03	2.85	2.88	1	0.31	0.02	4.9	4.3	4.2	---	---
S77FL-073-026-4	22-29	B1	0.02	0.05	0.01	0.01	0.09	2.98	3.07	3	0.20	0.02	4.9	4.1	4.0	---	---
S77FL-073-026-5	29-39	B21t	0.08	0.15	0.05	0.02	0.30	5.18	5.48	5	0.16	0.02	5.1	4.1	3.8	0.21	0.61
S77FL-073-026-6	39-56	B22tg	0.11	0.17	0.05	0.03	0.36	6.40	6.76	5	0.11	0.02	5.1	4.0	3.8	0.23	0.71
S77FL-073-026-7	56-80	B23tg	0.11	0.26	0.08	0.04	0.49	9.96	10.45	5	0.11	0.02	4.9	4.0	3.6	0.21	0.84
Orangeburg fine sandy loam:																	
S76FL-073-008-1	0-5	A1	2.71	0.73	0.03	0.14	3.61	12.60	16.21	22	2.48	0.06	5.3	4.6	4.4	0.29	0.84
S76FL-073-008-2	5-10	B1t	1.26	0.46	0.03	0.06	1.81	8.59	10.40	17	0.66	0.04	5.6	5.0	4.6	0.38	1.09
S76FL-073-008-3	10-16	B21t	1.24	0.56	0.03	0.05	1.88	8.74	10.62	18	0.40	0.03	5.5	4.7	4.4	0.43	1.47
S76FL-073-008-4	16-41	B22t	1.04	0.46	0.03	0.04	1.57	9.18	10.75	15	0.14	0.02	5.3	4.3	4.1	0.42	1:67
S75FL-073-008-5	41-62	B23t	1.64	0.51	0.03	0.04	2.22	9.18	11.40	19	0.10	0.02	5.4	4.5	4.3	0.44	2.10
S75FL-073-008-6	62-80	B23t	1.55	0.63	0.03	0.03	2.24	8.00	10.24	22	0.06	0.02	5.5	4.6	4.4	0.46	2.28
Ortega sand:																	
S76FL-073-003-1	0-4	A1	0.38	0.09	0.00	0.03	0.50	5.59	6.09	8	0.97	0.03	5.1	4.5	4.0	---	---
S76FL-073-003-2	4-10	C1	0.03	0.02	0.00	0.00	0.05	2.86	2.91	2	0.39	0.02	5.2	4.6	4.3	---	---
S76FL-073-003-3	10-28	C2	0.01	0.01	0.00	0.01	0.03	1.82	1.85	2	0.36	0.03	5.2	5.0	4.4	---	---
S76FL-073-003-4	28-44	C3	0.02	0.01	0.00	0.00	0.03	1.04	1.07	3	0.08	0.02	5.1	4.9	4.3	---	---
S76FL-073-003-5	44-58	C4	0.02	0.02	0.00	0.00	0.04	0.65	0.69	6	0.04	0.02	5.3	4.8	4.5	---	---
S76FL-073-003-6	58-72	C4	0.01	0.02	0.00	0.00	0.03	0.65	0.68	4	0.04	0.02	5.6	5.1	4.7	---	---
S76FL-073-003-7	72-96	C5	0.01	0.02	0.00	0.00	0.03	0.31	0.34	9	0.02	0.01	6.2	5.7	5.0	---	---
Pelham fine sand:																	
S77FL-073-029-1	0-5	A1	1.25	0.34	0.06	0.10	1.75	16.67	18.42	10	3.63	0.06	4.8	4.1	3.7	---	---
S77FL-073-029-2	5-12	A21	0.05	0.02	0.02	0.01	0.10	5.69	5.79	2	0.87	0.03	4.9	4.2	3.9	---	---
S77FL-073-029-3	12-21	A22	0.02	0.01	0.03	0.01	0.07	4.26	4.33	2	0.53	0.03	5.3	4.8	4.4	---	---
S77FL-073-029-4	21-26	A23	0.01	0.01	0.02	0.01	0.05	1.22	1.27	4	0.14	0.02	5.3	4.7	4.5	---	---
S77FL-073-029-5	26-32	B21tg	0.04	0.07	0.04	0.02	0.17	7.31	7.48	2	0.20	0.03	4.8	4.0	3.8	0.10	0.28
S77FL-073-029-6	32-54	B22tg	0.02	0.04	0.05	0.02	0.13	6.90	7.03	2	0.10	0.03	4.7	4.0	3.7	0.12	0.19
S77FL-073-029-7	54-80	B22tg	0.02	0.02	0.04	0.01	0.09	5.89	5.98	2	0.09	0.03	4.6	4.0	3.7	0.10	0.09
Plummer fine sand:																	
S76FL-073-010-1	0-6	A11	0.58	0.20	0.02	0.09	0.89	5.46	6.35	14	1.08	0.03	5.1	4.4	4.1	---	---
S76FL-073-010-2	6-19	A12	0.09	0.01	0.03	0.04	0.17	2.57	2.74	6	0.23	0.03	5.3	4.4	4.2	---	---
S76FL-073-010-3	19-28	A21g	0.09	0.01	0.01	0.02	0.13	3.05	3.18	4	.14	0.01	5.4	4.5	4.3	---	---
S76FL-073-010-4	28-36	A22g	0.14	0.01	0.01	0.01	0.17	2.89	3.06	6	0.12	0.01	5.5	4.7	4.3	---	---
S76FL-073-010-5	36-60	A23g	0.08	0.00	0.00	0.00	0.08	0.96	1.04	8	0.04	0.01	6.0	5.4	4.7	---	---
S76FL-073-010-6	60-61	A23g	0.49	0.24	0.00	0.01	0.74	2.25	2.99	25	0.06	0.01	5.6	4.7	4.2	---	---
S76FL-073-010-7	61-80	B2tg	1.43	0.98	0.05	0.04	2.50	4.50	7.00	36	0.04	0.04	5.3	4.4	4.0	0.07	0.11

TABLE 18.--CHEMICAL PROPERTIES OF SELECTED SOILS--Continued

Soil series and sample number	Depth	Horizon	Extractable bases: Ca	Extractable bases: Mg	Extractable bases: Na	Extractable bases: K	Extractable bases: Sum	Extractable acidity	Sum cations	Base saturation	Organic carbon	Electrical conductivity	pH: H_2O (1:1)	pH: $CaCl_2$ .01M (1:2)	pH: KCl 1N (1:1)	Extractable citrate dithionite: Al	Extractable citrate dithionite: Fe
	In	- - Milliequivalents per 100 grams - - -								Percent	Percent	Mmho/cm				- Percent -	
Rutlege loamy fine sand:																	
S77FL-073-014-1	0-5	A11	0.00	0.05	0.05	0.10	0.20	20.04	20.24	1	3.36	0.07	4.3	3.6	3.5	---	---
S77FL-073-014-2	5-23	A12	0.00	0.00	0.01	0.02	0.03	12.54	12.57	0	1.46	0.03	4.8	4.4	4.2	---	---
S77FL-073-014-3	23-32	C1	0.00	0.00	0.02	0.01	0.03	5.46	5.49	1	0.40	0.04	5.1	4.8	4.5	---	---
S77FL-073-014-4	32-57	C2	0.03	0.00	0.02	0.02	0.07	2.18	2.25	3	0.10	0.02	5.2	4.7	4.4	---	---
S77FL-073-014-5	57-62	C3	0.04	0.01	0.01	0.01	0.07	1.36	1.43	5	0.10	0.01	5.4	4.8	4.5	---	---
S77FL-073-01406	62-82	C4	0.02	0.01	0.01	0.01	0.05	2.45	2.50	2	0.10	0.01	5.8	5.2	4.8	---	---
Sapelo fine sand:																	
S77FL-073-018-1	0-6	Ap	0.11	0.12	0.03	0.02	0.28	5.50	5.78	5	0.83	0.04	4.6	3.6	3.4	---	---
S77FL-073-018-2	6-14	A2	0.04	0.02	0.03	0.01	0.10	1.04	1.14	9	0.00	0.02	5.1	4.0	3.8	---	---
S77FL-073-018-3	14-16	B21h	0.14	0.04	0.04	0.01	0.23	14.43	14.66	2	0.76	0.04	4.9	4.1	3.9	0.10	0.22
S77FL-073-018-4	16-22	B22h	0.12	0.04	0.03	0.01	0.20	12.39	12.59	2	0.75	0.05	4.9	4.1	4.0	0.08	0.21
S77FL-073-018-5	22-26	B3	0.05	0.03	0.02	0.01	0.11	8.52	8.63	1	0.40	0.03	5.1	4.3	4.2	0.09	0.18
S77FL-073-018-6	26-33	A'21	0.06	0.02	0.02	0.00	0.10	4.98	5.08	2	0.11	0.02	5.3	4.4	4.3	---	---
S77FL-073-018-7	33-40	A'22	0.08	0.05	0.02	0.00	0.15	3.25	3.40	4	0.00	0.03	5.3	4.4	4.3	---	---
S77FL-073-018-8	40-43	A'22	0.03	0.01	0.02	0.00	0.06	5.85	5.91	1	0.40	0.03	5.0	4.3	4.3	---	---
S77FL-073-018-9	43-80	B'2tg	0.08	0.28	0.04	0.02	0.42	5.75	6.17	7	0.07	0.04	4.7	3.8	3.6	---	---
Talquin fine sand:																	
S77FL-073-021-1	0-10	Ap	0.22	0.04	0.01	0.01	0.28	2.32	2.60	11	0.48	0.05	4.4	3.3	3.1	---	---
S77FL-073-021-2	10-25	A2	0.02	0.00	0.00	0.00	0.02	0.10	0.12	17	0.04	0.01	5.4	4.1	3.9	---	---
S77FL-073-021-3	25-27	B21h	0.12	0.06	0.02	0.01	0.21	6.35	6.56	3	0.66	0.03	4.7	3.6	3.5	0.06	0.05
S77FL-073-021-4	27-37	B22h	0.03	0.01	0.02	0.00	0.06	3.73	3.79	2	0.31	0.03	5.0	3.9	3.9	0.06	0.04
S77FL-073-021-5	37-80	C	0.01	0.01	0.01	0.00	0.03	1.55	1.58	2	0.10	0.03	5.0	4.2	4.2	---	---
Troup fine sand:																	
S76FL-073-005-1	0-8	Ap	2.30	0.52	0.01	0.17	3.00	6.24	9.24	32	1.02	0.08	5.9	5.3	5.0	0.08	0.18
S76FL-073-005-2	8-19	A21	1.30	0.10	0.01	0.09	1.50	2.34	3.84	39	0.31	0.04	6.1	5.6	5.1	0.08	0.17
S76FL-073-005-3	19-26	A22	1.10	0.09	0.00	0.07	1.26	1.95	3.21	39	0.16	0.03	6.1	5.7	5.0	0.08	0.23
S76FL-073-005-4	26-44	A23	0.71	0.17	0.00	0.05	0.93	0.95	1.88	49	0.10	0.03	6.2	5.9	4.9	0.08	0.24
S76FL-073-005-5	44-54	B21t	0.59	1.00	0.01	0.30	1.90	4.16	6.06	31	0.12	0.02	5.6	4.7	4.1	0.17	0.70
S76FL-073-005-6	54-73	B22t	0.21	0.61	0.01	0.51	1.34	7.22	8.56	16	0.08	0.03	5.3	4.1	3.9	0.25	0.11
S76FL-073-005-7	73-80	B23t	0.16	0.48	0.03	0.48	1.15	9.78	10.93	11	0.06	0.02	5.2	3.9	3.7	0.24	1.18
Wagram loamy fine sand:																	
S76FL-073-012-1	0-5	A1	0.35	0.18	0.02	0.06	0.61	7.66	8.27	7	2.15	0.04	4.8	4.2	3.9	---	---
S76FL-073-012-2	5-9	A21	0.06	0.04	0.03	0.03	0.16	4.82	4.98	3	0.85	0.03	5.4	4.7	4.3	---	---
S76FL-073-012-3	9-19	A22	0.00	0.02	0.01	0.01	0.04	4.02	4.06	1	0.47	0.02	5.3	4.7	4.4	---	---
S76FL-073-012-4	19-31	A23	0.00	0.04	0.01	0.01	0.06	2.57	2.63	2	0.23	0.02	5.1	4.5	4.3	---	---
S76FL-073-012-5	31-43	B21t	0.00	0.16	0.04	0.02	0.22	4.73	4.95	4	0.16	0.02	5.1	4.2	3.9	0.13	0.27
S76FL-073-012-6	43-52	B22t	0.00	0.30	0.03	0.02	0.35	5.40	5.75	6	0.13	0.02	5.2	4.1	3.8	0.11	0.24
S76FL-073-012-7	52-62	B23t	0.05	0.42	0.04	0.02	0.53	6.53	7.06	8	0.08	0.02	5.1	4.2	3.8	0.09	0.20
S76FL-073-012-8	62-80	C	0.00	0.26	0.03	0.02	0.31	6.76	7.07	4	0.07	0.02	5.1	4.1	3.8	---	---
Yonges fine sandy loam:																	
S76FL-073-011-1	0-5	A1	0.99	1.20	0.15	0.20	2.54	22.97	25.51	10	5.06	0.09	4.2	3.5	3.2	---	---
S76FL-073-011-2	5-9	A2	0.27	0.26	0.01	0.01	0.55	1.80	2.35	23	0.32	0.02	5.3	4.3	3.9	---	---
S76FL-073-011-3	9-24	B21tg	8.87	10.90	0.50	0.13	20.40	10.93	31.33	65	0.19	0.60	5.8	5.5	4.7	0.03	0.18
S76FL-073-011-4	24-53	B22tg	6.74	8.27	0.10	0.09	15.20	7.13	22.33	68	0.21	0.18	6.8	6.0	5.2	0.03	0.06
S76FL-073-011-5	53-71	B23tg	6.12	7.37	0.30	0.20	13.99	5.98	19.97	70	0.12	0.13	7.4	6.6	5.9	0.04	0.06
S76FL-073-011-6	71-80	B3g	4.61	5.88	0.19	0.20	10.88	5.40	16.28	67	0.10	0.14	6.6	6.1	5.5	---	---

TABLE 19.--CLAY MINERALOGY OF SELECTED SOILS

Soil series and sample number	Depth	Horizon	Percentage of clay minerals				
			Montmor-illonite	14 Angstrom intergrade	Kaolinite	Gibbsite	Quartz
	Inches						
Albany loamy sand:							
S76FL-073-002-1	0-4	A1	0	46	11	0	43
S76FL-073-002-3	21-36	A22	0	45	8	0	47
S76FL-073-002-5	50-63	B21t	*	57	38	0	5
S76FL-073-002-7	78-90	C	*	8	86	0	6
Alpin sand:							
S77FL-073-023-1	0-4	A1	0	53	8	0	39
S77FL-073-023-3	17-40	A22	0	40	53	0	7
S77FL-073-023-5	55-90	A2&B	0	55	34	0	11
Blanton fine sand:							
S76FL-073-007-1	0-6	Ap	0	54	19	0	27
S76FL-073-007-6	52-52	B21t	0	42	49	0	9
S76FL-073-007-8	82-90	B22t	*	22	66	0	12
Bonifay fine sand:							
S77FL-073-019-1	0-8	Ap	0	36	54	0	10
S77FL-073-019-3	18-31	A22	0	34	57	0	9
S77FL-073-019-5	42-53	B21t	0	19	66	0	15
S77FL-073-019-6	53-80	B22t	0	9	91	0	0
Chaires fine sand:							
S77FL-073-020-1	0-7	Ap	0	0	8	0	92
S77FL-073-020-5	30-35	B22h	0	0	0	0	100
S77FL-073-020-8	52-68	B21tg	73	0	17	0	10
S77FL-073-020-9	68-80	B22tg	93	0	4	0	3
Chipley fine sand:							
S76FL-073-013-1	0-5	A11	0	16	17	0	67
S76FL-073-013-4	23-37	C2	0	19	9	0	72
S76FL-073-013-8	70-80	C6	0	14	10	0	76
Foxworth sand:							
S77FL-073-024-1	0-4	A1	0	36	0	0	64
S77FL-073-024-3	9-36	C2	0	52	7	0	41
S77FL-073-024-7	64-80	C6	0	0	0	0	100
Fuquay fine sand:							
S77FL-073-025-1	0-7	A1	0	50	42	0	8
S77FL-073-025-4	21-37	A23	0	37	47	0	16
S77FL-073-025-5	37-49	B21t	0	31	61	0	8
S77FL-073-025-7	64-80	B23t	0	10	88	0	2
Kershaw sand:							
S77FL-073-016-1	0-7	A1	0	28	8	28	36
S77FL-073-016-3	11-21	C2	0	53	9	30	8
S77FL-073-016-6	63-80	C5	0	13	0	0	87
Lakeland sand:							
S77FL-073-015-1	0-5	A	0	51	9	35	5
S77FL-073-015-3	20-32	C2	0	38	7	27	5
S77FL-073-015-6	78-90	C5	0	44	11	42	3
Leefield loamy sand:							
S77FL-073-017-1	0-10	Ap	0	38	56	0	6
S77FL-073-017-3	19-23	A22	0	9	9	0	82
S77FL-073-017-5	36-51	B21t	0	27	73	0	0
S77FL-073-017-6	51-90	B22t	0	15	50	0	35
Leon sand:							
S77FL-073-028-1	0-6	A1	0	0	15	0	85
S77FL-073-028-4	25-29	B21h	0	19	16	0	65
S77FL-073-028-8	50-80	B32	0	48	0	0	52

TABLE 19.--CLAY MINERALOGY OF SELECTED SOILS--Continued

Soil series and sample number	Depth	Horizon	Percentage of clay minerals				
			Montmor- illonite	14 Angstrom intergrade	Kaolinite	Gibbsite	Quartz
	Inches						
Lucy fine sand:							
S76FL-073-006-1	0-5	Ap	0	53	28	0	19
S76FL-073-006-3	13-22	A21	0	54	31	0	15
S76FL-073-006-6	36-56	B22t	0	39	51	0	10
S76FL-073-006-8	75-90	B22t	*	25	66	0	9
Lutterloh fine sand:							
S77FL-073-022-1	0-7	Ap	0	57	11	0	32
S77FL-073-022-3	24-40	A22	0	70	16	0	14
S77FL-073-022-5	59-71	B21tg	0	50	16	0	34
S77FL-073-022-6	71-90	IIB22tg	0	25	54	0	21
Meggett very fine sandy loam:							
S77FL-073-031-1	0-6	A1	36	16	42	0	6
S77FL-073-031-3	12-28	B21tg	69	0	29	0	2
S77FL-073-031-5	35-50	B23tg	73	0	22	0	5
S77FL-073-031-7	64-80	B32g	79	0	11	0	10
Norfolk loamy fine sand:							
S76FL-073-004-1	0-4	A1	0	34	37	0	29
S76FL-073-004-3	8-15	B21t	0	44	48	0	8
S76FL-073-004-4	15-31	B22t	0	31	65	0	4
S76FL-073-004-8	68-80	IIC	0	8	92	0	0
Norfolk loamy sand clayey substratum:							
S76FL-073-009-1	0-7	Ap	0	42	21	0	37
S76FL-073-009-3	14-29	B22t	0	40	42	0	18
S76FL-073-009-7	64-80	IIC	86	0	11	0	3
Ocilla fine sand:							
S77FL-073-026-1	0-3	A1	9	20	18	0	53
S77FL-073-026-5	29-39	B21t	14	26	46	0	14
S77FL-073-026-7	56-80	B23tg	22	16	54	0	8
Orangeburg fine sandy loam:							
S76FL-073-008-1	0-5	A1	0	16	41	0	43
S76FL-073-008-4	16-41	B22t	0	43	57	0	0
S76FL-073-008-6	62-80	B23t	0	10	87	0	3
Ortega sand:							
S76FL-073-003-1	0-4	A1	0	40	15	20	20
S76FL-073-003-3	10-28	C2	0	42	12	15	31
S76FL-073-003-7	72-96	C5	0	50	16	11	23
Pelham fine sand:							
S77FL-073-029-1	0-5	A1	0	24	32	0	44
S77FL-073-029-5	26-32	B21tg	0	20	71	0	9
S77FL-073-029-7	54-80	B22tg	0	12	87	0	1
Plummer fine sand:							
S76FL-073-010-1	0-6	A11	0	24	16	0	60
S76FL-073-010-4	28-36	A22g	12	22	25	0	41
S76FL-073-010-7	62-80	B2tg	0	0	5	0	95
Rutlege loamy fine sand:							
S77FL-073-014-1	0-5	A11	0	27	12	0	61
S77FL-073-014-3	23-32	C1	0	22	10	0	68
S77FL-073-014-6	62-82	C4	0	27	29	0	44
Sapelo fine sand:							
S77FL-073-018-1	0-6	Ap	37	11	13	0	39
S77FL-073-018-4	16-22	B22h	12	40	9	0	39
S77FL-073-018-8	40-43	A'22	0	29	15	0	56
S77FL-073-018-9	43-80	B'2tg	0	38	19	0	43

TABLE 19.--CLAY MINERALOGY OF SELECTED SOILS--Continued

Soil series and sample number	Depth	Horizon	Percentage of clay minerals				
			Montmor- illonite	14 Angstrom intergrade	Kaolinite	Gibbsite	Quartz
	Inches						
Talquin fine sand:							
S77FL-073-021-1	0-10	Ap	0	0	0	0	100
S77FL-073-021-3	25-27	B21h	0	35	4	0	61
S77FL-073-021-5	37-80	C	0	16	3	0	81
Troup fine sand:							
S76FL-073-005-1	0-8	Ap	0	62	22	0	16
S76FL-073-005-4	26-44	A23	0	44	25	0	31
S76FL-073-005-5	44-54	B21t	0	52	42	0	6
S76FL-073-005-7	73-80	B23t	*	20	72	0	8
Wagram loamy fine sand:							
S76FL-073-012-1	0-3	A1	0	21	30	0	49
S76FL-073-012-5	31-43	B21t	0	31	41	0	28
S76FL-073-012-8	62-80	C	0	7	93	0	*
Yonges fine sandy loam:							
S76FL-073-011-1	0-5	A1	23	*	4	0	73
S76FL-073-011-2	5-9	A2	29	24	15	0	32
S76FL-073-011-3	9-24	B21tg	94	0	2	0	4
S76FL-073-011-4	24-53	B22tg	90	0	4	0	6
S76FL-073-011-5	53-71	B23tg	95	0	2	0	3
S76FL-073-011-6	71-80	B3g	95	0	2	0	3

* Trace.

TABLE 20.--ENGINEERING INDEX TEST DATA

Soil name, report number, horizon, and depth in inches	Classification: AASHTO	Classification: Unified	Percentage passing sieve--: No. 4	No. 10	No. 40	No. 200	Percentage smaller than--: .02 mm	.005 mm	.002 mm	Liquid limit	Plasticity index	Moisture density: Max. dry density	Optimum moisture
										Pct		Lb/ft3	Pct
Alpin sand:[1] (S77FL-073-023)													
A22-------17 to 40	A-2-4 (0)	SM	100	100	91	13	4	2	1	NP	NP[2]	111.0	12.2
A2&B------55 to 90	A-2-4 (0)	SP-SM	100	100	90	11	1	0	0	NP	NP	108.3	12.2
Bonifay fine sand: (S77FL-073-019)													
A22-------18 to 31	A-2-4 (0)	SM	100	100	96	19	9	7	7	NP	NP	115.6	9.8
B21t------42 to 53	A-4 (0)	SC	100	100	92	36	28	25	23	28	9	115.9	10.5
Chaires fine sand: (S77FL-073-020)													
A2--------17 to 28	A-3 (0)	SP-SM	100	100	98	10	1	0	0	NP	NP	99.9	14.4
Foxworth sand: (S77FL-073-024)													
C1-------- 9 to 36	A-3 (0)	SP-SM	100	100	82	8	4	2	1	NP	NP	110.3	10.4
C2--------46 to 54	A-3 (0)	SP-SM	100	100	81	5	4	1	1	NP	NP	107.1	12.0
Fuquay fine sand: (S77FL-073-025)													
A23-------21 to 37	A-2-4 (0)	SM	100	100	97	18	9	6	5	NP	NP	114.6	9.9
B22t------49 to 64	A-6 (3)	SC	100	100	98	41	35	29	24	35	18	108.1	16.0
Kershaw sand: (S77FL-073-016)													
C2--------11 to 21	A-3 (0)	SP-SM	100	100	85	5	2	0	0	NP	NP	107.9	12.6
C4--------44 to 63	A-3 (0)	SP	100	100	88	4	1	1	0	NP	NP	106.6	12.0
Lakeland sand: (S77FL-073-015)													
C1-------- 5 to 20	A-3 (0)	SP-SM	100	100	87	10	4	3	2	NP	NP	111.7	10.7
C4--------41 to 78	A-3 (0)	SP-SM	100	100	77	7	3	2	1	NP	NP	111.8	10.6
Leefield loamy sand: (S77FL-073-017)													
A23-------23 to 36	A-2-4 (0)	SM	100	100	90	20	11	6	4	NP	NP	120.2	9.3
B21t------36 to 51	A-4 (0)	SC	100	100	92	37	29	24	23	28	9	116.8	11.5

See footnotes at end of table.

TABLE 20.--ENGINEERING INDEX TEST DATA--CONTINUED

Soil name, report number, horizon, and depth in inches	Classification		Grain size distribution							Liquid limit	Plasticity index	Moisture density	
			Percentage passing sieve--				Percentage smaller than--						
	AASHTO	Unified	No. 4	No. 10	No. 40	No. 200	.02 mm	.005 mm	.002 mm			Max. dry density	Optimum moisture
										Pct		Lb/ft3	Pct
Lutterloh fine sand: (S77FL-073-022)													
A22-------24 to 40	A-2-4 (0)	SM	100	100	99	13	2	1	1	NP	NP	102.2	14.5
B21tg-----50 to 90	A-2-4 (0)	SC	100	100	99	21	18	18	18	29	9	111.5	14.5
Sapelo fine sand: (S77FL-073-018)													
A'22------33 to 39	A-2-4 (0)	SM	100	100	93	17	4	1	0	NP	NP	109.8	12.0
B'2tg-----43 to 80	A-2-4 (0)	SM	100	100	93	25	16	14	13	NP	NP	120.1	11.2
Talquin fine sand: (S77FL-073-021)													
A2--------10 to 25	A-2-4 (0)	SM	100	100	100	13	2	0	0	NP	NP	98.4	15.4
C---------37 to 80	A-3 (0)	SP-SM	100	100	100	10	0	0	0	NP	NP	100.3	13.4

[1]See the typifying pedon in the section "Soil series and their morphology" for the sample location.

[2]NP--means nonplastic.

TABLE 21.--CLASSIFICATION OF THE SOILS

Soil name	Family or higher taxonomic class
Albany	Loamy, siliceous, thermic Grossarenic Paleudults
Alpin	Thermic, coated Typic Quartzipsamments
Arents	Arents
Blanton	Loamy, siliceous, thermic Grossarenic Paleudults
Bonifay	Loamy, siliceous, thermic Grossarenic Plinthic Paleudults
Chaires	Sandy, siliceous, thermic Alfic Haplaquods
Chipley	Thermic, coated Aquic Quartzipsamments
Dorovan	Dysic, thermic Typic Medisaprists
Dothan	Fine-loamy, siliceous, thermic Plinthic Paleudults
Faceville	Clayey, kaolinitic, thermic Typic Paleudults
Foxworth	Thermic, coated Typic Quartzipsamments
Fuquay	Loamy, siliceous, thermic Arenic Plinthic Paleudults
Kershaw	Thermic, uncoated Typic Quartzipsamments
Lakeland	Thermic, coated Typic Quartzipsamments
Leefield	Loamy, siliceous, thermic Arenic Plinthaquic Paleudults
Leon	Sandy, siliceous, thermic Aeric Haplaquods
Lucy	Loamy, siliceous, thermic Arenic Paleudults
Lutterloh	Loamy, siliceous, thermic Grossarenic Paleudalfs
Lynchburg	Fine-loamy, siliceous, thermic Aeric Paleaquults
*Meggett	Fine, mixed, thermic Typic Albaqualfs
Norfolk	Fine-loamy, siliceous, thermic Typic Paleudults
Ocilla	Loamy, siliceous, thermic Aquic Arenic Paleudults
Orangeburg	Fine-loamy, siliceous, thermic Typic Paleudults
Ortega	Thermic, uncoated Typic Quartzipsamments
Pamlico	Sandy or sandy-skeletal, siliceous, dysic, thermic Terric Medisaprists
Pelham	Loamy, siliceous, thermic Arenic Paleaquults
Plummer	Loamy, siliceous, thermic Grossarenic Paleaquults
Rutlege	Sandy, siliceous, thermic Typic Humaquepts
Sapelo	Sandy, siliceous, thermic Ultic Haplaquods
Surrency	Loamy, siliceous, thermic Arenic Umbric Paleaquults
Talquin	Sandy, siliceous, thermic Entic Haplaquods
Troup	Loamy, siliceous, thermic Grossarenic Paleudults
Wagram	Loamy, siliceous, thermic Arenic Paleudults
Yonges	Fine-loamy, mixed, thermic Typic Ochraqualfs

*A taxadjunct to the series.

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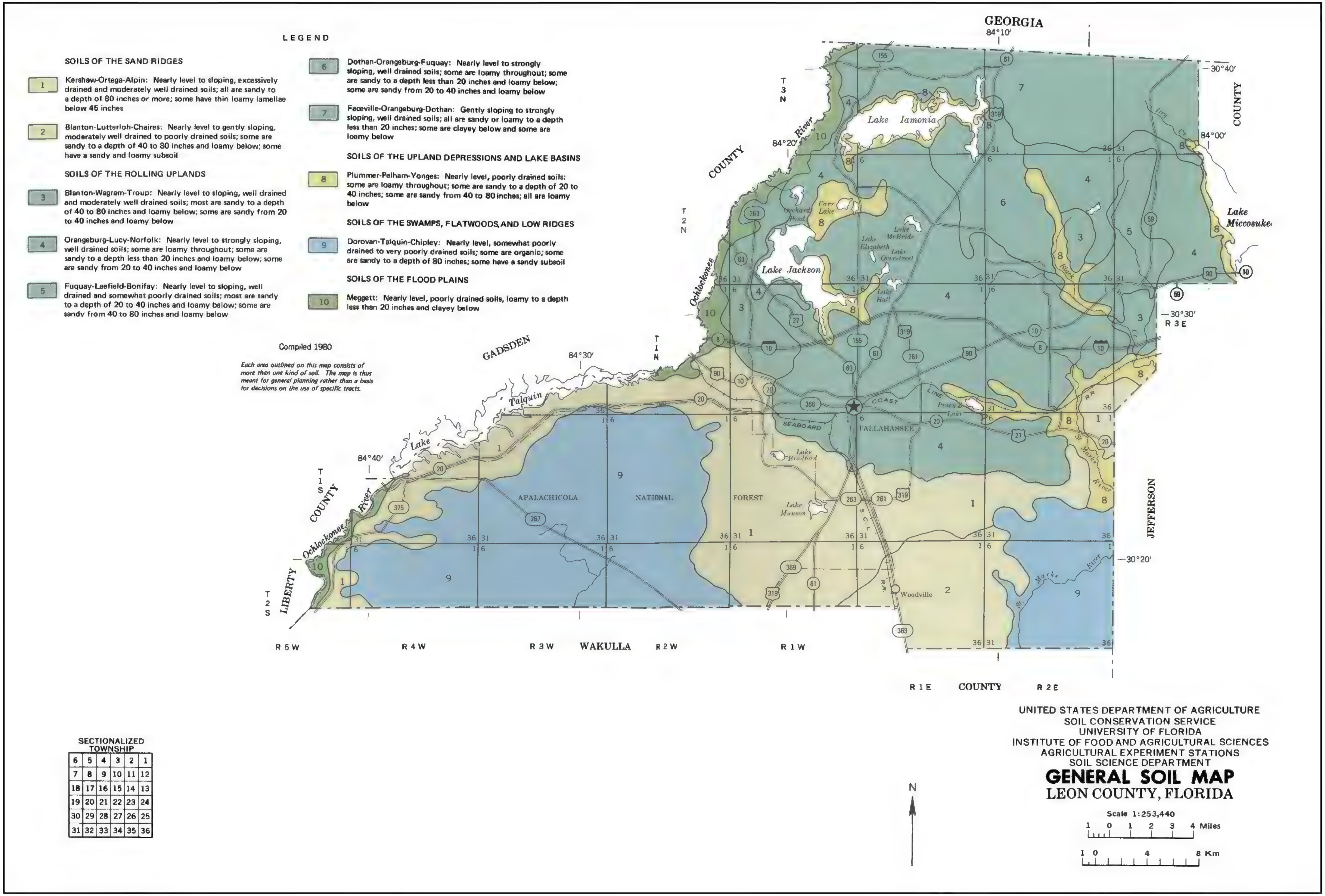
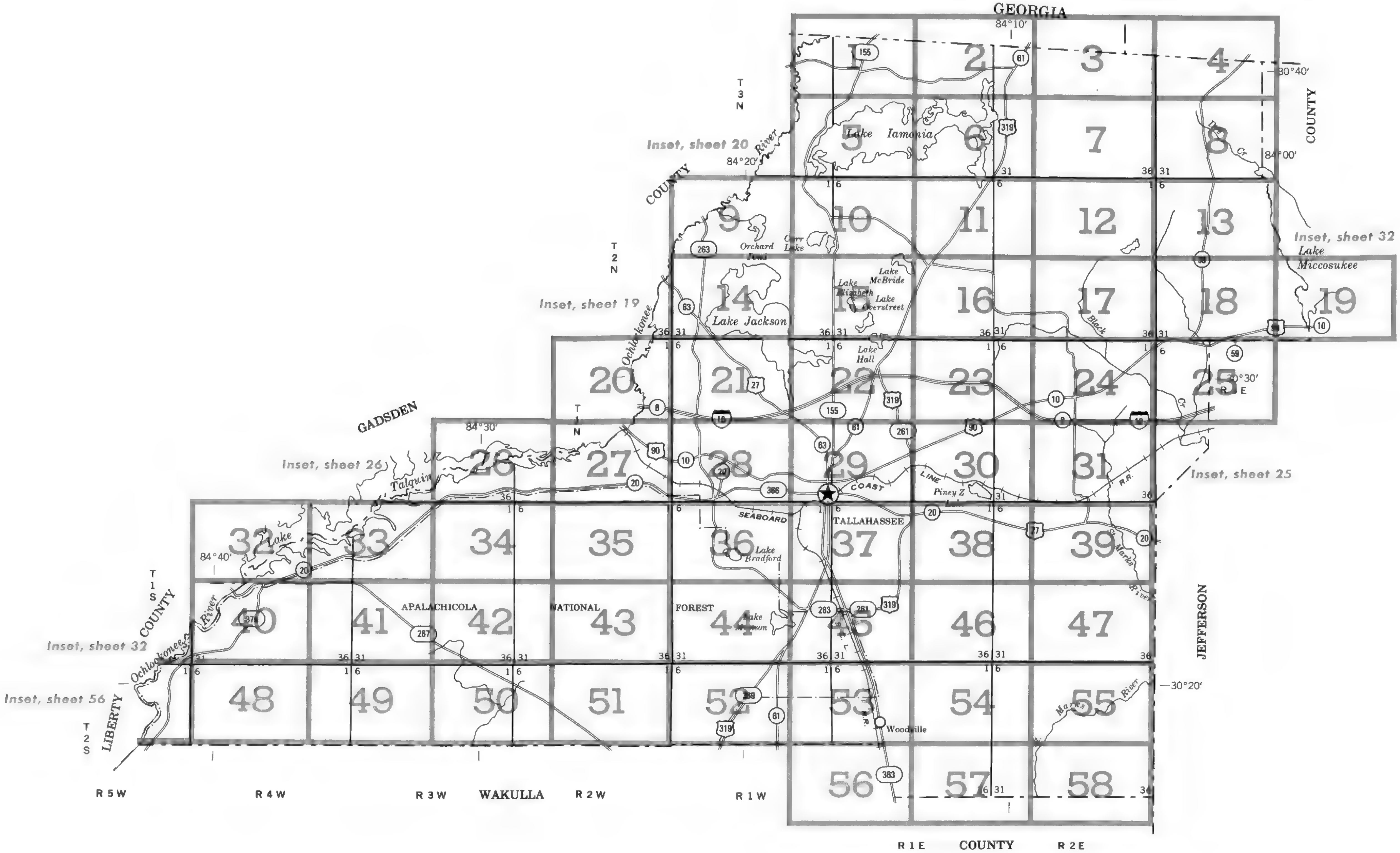

LEGEND
SOILS OF THE SAND RIDGES
1 Kershaw-Ortega-Alpin: Nearly level to sloping, excessively drained and moderately well drained soils; all are sandy to a depth of 80 inches or more; some have thin loamy lamellae below 45 inches
2 Blanton-Lutterloh-Chaires: Nearly level to gently sloping, moderately well drained to poorly drained soils; some are sandy to a depth of 40 to 80 inches and loamy below; some have a sandy and loamy subsoil
SOILS OF THE ROLLING UPLANDS
3 Blanton-Wagram-Troup: Nearly level to sloping, well drained and moderately well drained soils; most are sandy to a depth of 40 to 80 inches and loamy below; some are sandy from 20 to 40 inches and loamy below
4 Orangeburg-Lucy-Norfolk: Nearly level to strongly sloping, well drained soils; some are loamy throughout; some are sandy to a depth less than 20 inches and loamy below; some are sandy from 20 to 40 inches and loamy below
5 Fuquay-Leefield-Bonifay: Nearly level to sloping, well drained and somewhat poorly drained soils; most are sandy to a depth of 20 to 40 inches and loamy below; some are sandy from 40 to 80 inches and loamy below
6 Dothan-Orangeburg-Fuquay: Nearly level to strongly sloping, well drained soils; some are loamy throughout; some are sandy to a depth less than 20 inches and loamy below; some are sandy from 20 to 40 inches and loamy below
7 Faceville-Orangeburg-Dothan: Gently sloping to strongly sloping, well drained soils; all are sandy or loamy to a depth less than 20 inches; some are clayey below and some are loamy below
SOILS OF THE UPLAND DEPRESSIONS AND LAKE BASINS
8 Plummer-Pelham-Yonges: Nearly level, poorly drained soils; some are loamy throughout; some are sandy to a depth of 20 to 40 inches; some are sandy from 40 to 80 inches; all are loamy below
SOILS OF THE SWAMPS, FLATWOODS, AND LOW RIDGES
9 Dorovan-Talquin-Chipley: Nearly level, somewhat poorly drained to very poorly drained soils; some are organic; some are sandy to a depth of 80 inches; some have a sandy subsoil
SOILS OF THE FLOOD PLAINS
10 Meggett: Nearly level, poorly drained soils, loamy to a depth less than 20 inches and clayey below
Compiled 1980
Each area outlined on this map consists of more than one kind of soil. The map is thus meant for general planning rather than a basis for decisions on the use of specific tracts.
GEORGIA
GADSDEN COUNTY
LIBERTY COUNTY
WAKULLA COUNTY
JEFFERSON COUNTY
Lake Iamonia
Lake Jackson
Lake Miccosukee
Lake Talquin
Ochlockonee River
St. Marks River
TALLAHASSEE
Woodville
APALACHICOLA NATIONAL FOREST
Lake Munson
Lake Bradford
Carr Lake
Orchard Pond
Lake McBride
Lake Elizabeth
Lake Overstreet
Lake Hall
Piney Z Lake
SEABOARD COAST LINE
84°10′
84°20′
84°30′
84°40′
84°00′
30°40′
30°30′
30°20′
T 3 N
T 2 N
T 1 N
T 1 S
T 2 S
R 5 W
R 4 W
R 3 W
R 2 W
R 1 W
R 1 E
R 2 E
R 3 E
UNITED STATES DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
UNIVERSITY OF FLORIDA
INSTITUTE OF FOOD AND AGRICULTURAL SCIENCES
AGRICULTURAL EXPERIMENT STATIONS
SOIL SCIENCE DEPARTMENT
GENERAL SOIL MAP
LEON COUNTY, FLORIDA
Scale 1:253,440
1 0 1 2 3 4 Miles
1 0 4 8 Km
N
SECTIONALIZED TOWNSHIP
6 5 4 3 2 1
7 8 9 10 11 12
18 17 16 15 14 13
19 20 21 22 23 24
30 29 28 27 26 25
31 32 33 34 35 36



SECTIONALIZED TOWNSHIP

6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

Original text from each map sheet:
"This map is compiled on 1974 aerial photography by the U.S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned."

N

INDEX TO MAP SHEETS
LEON COUNTY, FLORIDA

Scale 1:253,440

1 0 1 2 3 4 Miles

1 0 4 8 Km

SOIL LEGEND

The legend is numeric. Soil names followed by the superscript ★ are broadly defined units. The composition of these units are determined from statistical analysis of soil transect data, and are controlled well enough to be interpreted for the expected use of the soils. Soils without a slope designation are for nearly level soils or miscellaneous areas.

SYMBOL	NAME
1	Albany loamy sand, 0 to 2 percent slopes
2	Albany-Urban land complex, 0 to 2 percent slopes
3	Alpin sand, 0 to 5 percent slopes
4	Arents, 0 to 5 percent slopes
5	Blanton fine sand, 0 to 5 percent slopes
6	Bonifay fine sand, 0 to 5 percent slopes
7	Chaires fine sand
8	Chipley fine sand, 0 to 2 percent slopes
9	Dorovan mucky peat
10	Dothan loamy fine sand, 2 to 5 percent slopes
11	Dothan loamy fine sand, 5 to 8 percent slopes
12	Faceville sandy loam, 2 to 5 percent slopes
13	Faceville sandy loam, 5 to 8 percent slopes
14	Faceville sandy loam, 8 to 12 percent slopes
15	Foxworth sand, 0 to 5 percent slopes
16	Fuquay fine sand, 0 to 5 percent slopes
17	Fuquay fine sand, 5 to 8 percent slopes
18	Kershaw sand, 0 to 5 percent slopes
19	Kershaw sand, 5 to 8 percent slopes
20	Kershaw-Urban land complex, 0 to 5 percent slopes
21	Lakeland sand, 0 to 5 percent slopes
22	Leefield loamy sand
23	Leon sand
24	Lucy fine sand, 0 to 5 percent slopes
25	Lucy fine sand, 5 to 8 percent slopes
26	Lutterloh fine sand, 0 to 5 percent slopes
27	Lynchburg fine sandy loam
28	*Meggett soils, frequently flooded
29	Norfolk loamy fine sand, 2 to 5 percent slopes
30	Norfolk loamy fine sand, 5 to 8 percent slopes
31	Norfolk loamy sand, clayey substratum, 5 to 8 percent slopes
32	Ocilla fine sand
33	Orangeburg fine sandy loam, 2 to 5 percent slopes
34	Orangeburg fine sandy loam, 5 to 8 percent slopes
35	Orangeburg fine sandy loam, 8 to 12 percent slopes
36	Orangeburg-Urban land complex, 2 to 12 percent slopes
37	Ortega sand, 0 to 5 percent slopes
38	Pamlico-Dorovan complex
39	Pelham fine sand
40	Pits
41	Plummer fine sand
42	Plummer mucky fine sand, depressional
43	Rutlege loamy fine sand
44	*Rutlege soils, occasionally flooded
45	Sapelo fine sand
46	Surrency loamy sand
47	Talquin fine sand
48	Troup fine sand, 0 to 5 percent slopes
49	Urban land
50	Wagram loamy fine sand, 0 to 5 percent slopes
51	Wagram loamy fine sand, 5 to 8 percent slopes
52	Yonges fine sandy loam

*The composition of these units is more variable than that of the other units in the survey area, but has been controlled well enough to be interpreted for the expected use of the soils.

CONVENTIONAL AND SPECIAL SYMBOLS LEGEND

CULTURAL FEATURES

BOUNDARIES

- National, state or province
- County or parish
- Minor civil division
- Reservation (national forest or park, state forest or park, and large airport)
- Land grant
- Limit of soil survey (label)
- Field sheet matchline & neatline

AD HOC BOUNDARY (label) — Hedley Airstrip

Small airport, airfield, park, oilfield, cemetery, or flood pool — FLOOD POOL LINE

STATE COORDINATE TICK

LAND DIVISION CORNERS (sections and land grants)

ROADS

- Divided (median shown if scale permits)
- Other roads
- Trail

ROAD EMBLEM & DESIGNATIONS

- Interstate — 21
- Federal — 173
- State — 28
- County, farm or ranch — 1283

RAILROAD

POWER TRANSMISSION LINE (normally not shown)

PIPE LINE (normally not shown)

FENCE (normally not shown)

LEVEES

- Without road
- With road
- With railroad

DAMS

- Large (to scale)
- Medium or small — water, w

PITS

- Pit
- Mine or quarry

MISCELLANEOUS CULTURAL FEATURES

- Farmstead, house (omit in urban areas)
- Church
- School
- Indian mound (label) — Indian Mound
- Located object (label) — Tower
- Tank (label) — Gas
- Wells, oil or gas
- Windmill
- Kitchen midden

WATER FEATURES

DRAINAGE

- Perennial, double line
- Perennial, single line
- Intermittent
- Drainage end
- Canals or ditches
  - Double-line (label) — CANAL
  - Drainage and/or irrigation

LAKES, PONDS AND RESERVOIRS

- Perennial — water, w
- Intermittent — int, i

MISCELLANEOUS WATER FEATURES

- Marsh or swamp
- Spring
- Well, artesian
- Well, irrigation
- Wet spot

SPECIAL SYMBOLS FOR SOIL SURVEY

SOIL DELINEATIONS AND SYMBOLS — CnB, WaC2

ESCARPMENTS

- Bedrock (points down slope)
- Other than bedrock (points down slope)

SHORT STEEP SLOPE

GULLY

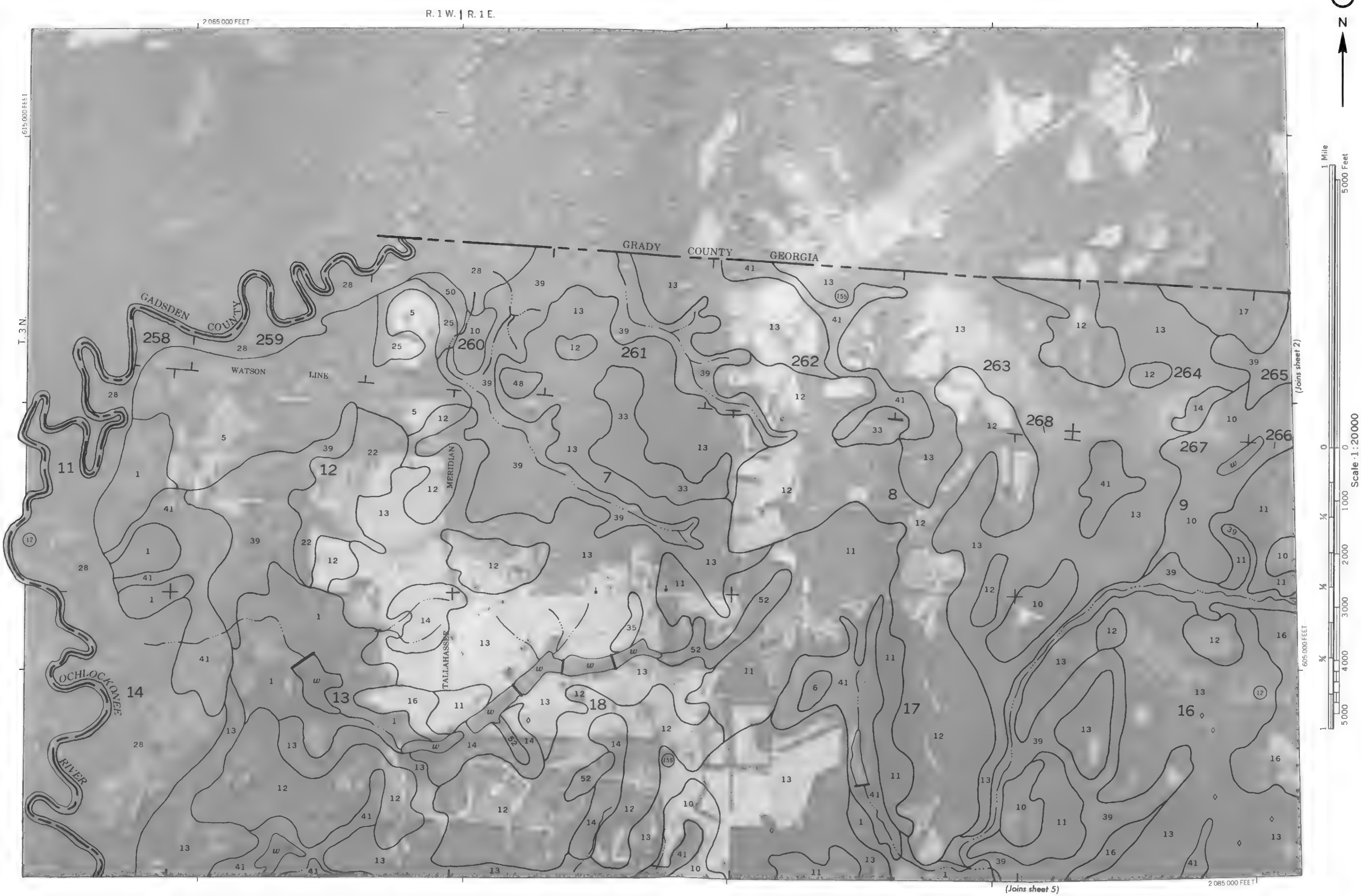
DEPRESSION OR SINK

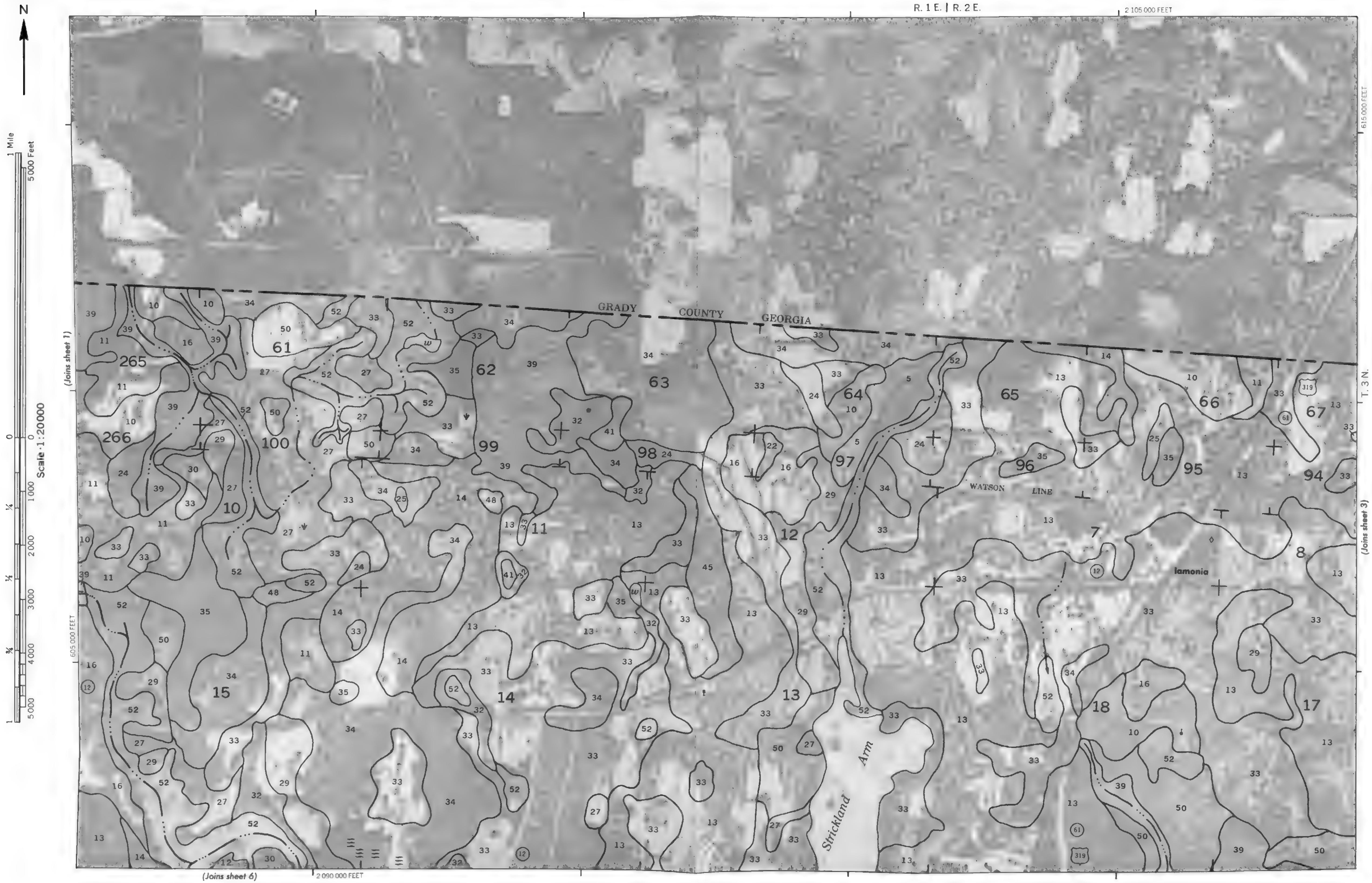
SOIL SAMPLE SITE (normally not shown) — S

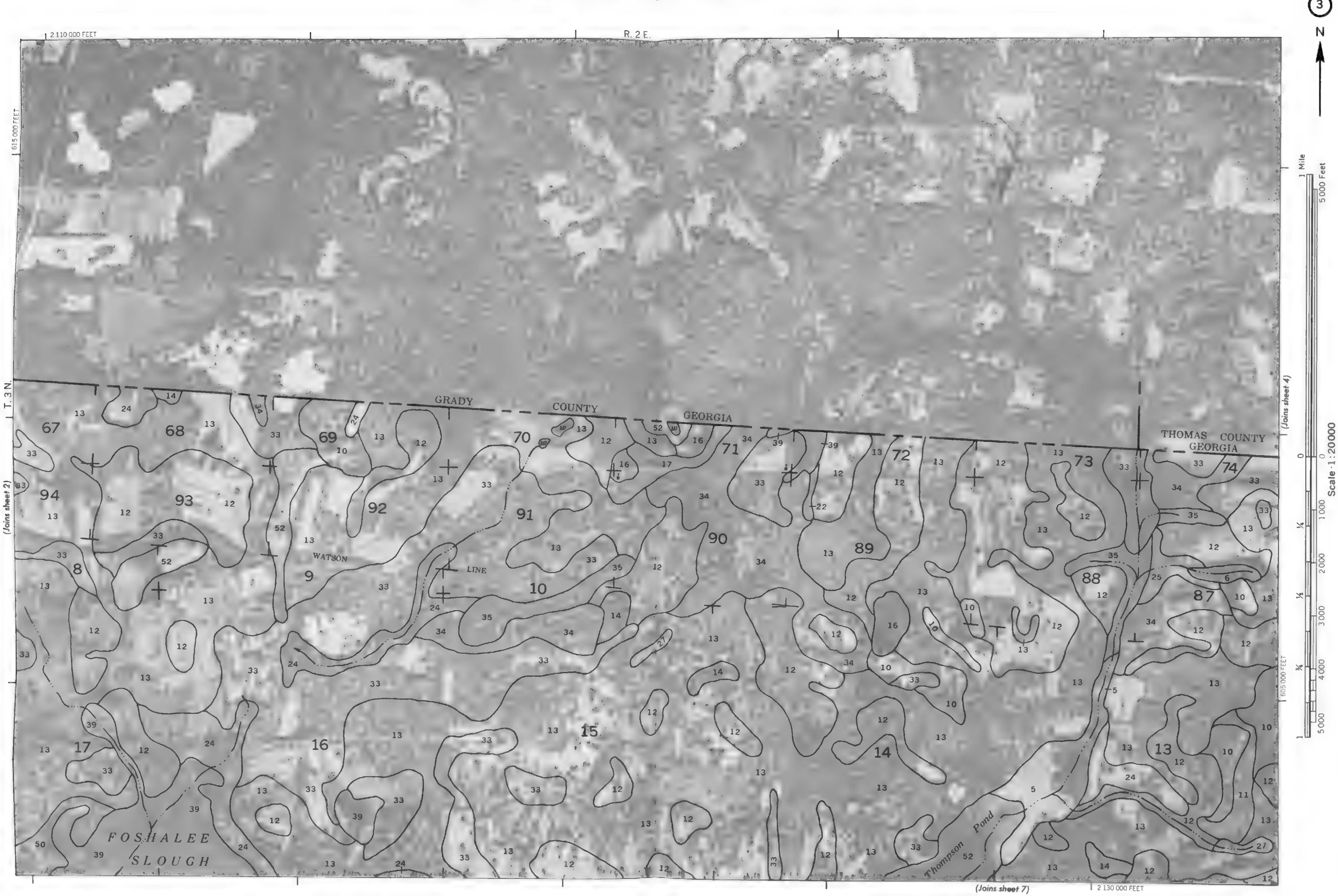
MISCELLANEOUS

- Blowout
- Clay spot
- Gravelly spot
- Gumbo, slick or scabby spot (sodic)
- Dumps and other similar non soil areas
- Prominent hill or peak
- Rock outcrop (includes sandstone and shale)
- Saline spot
- Sandy spot
- Severely eroded spot
- Slide or slip (tips point upslope)
- Stony spot, very stony spot

LEON COUNTY, FLORIDA — SHEET NUMBER 1

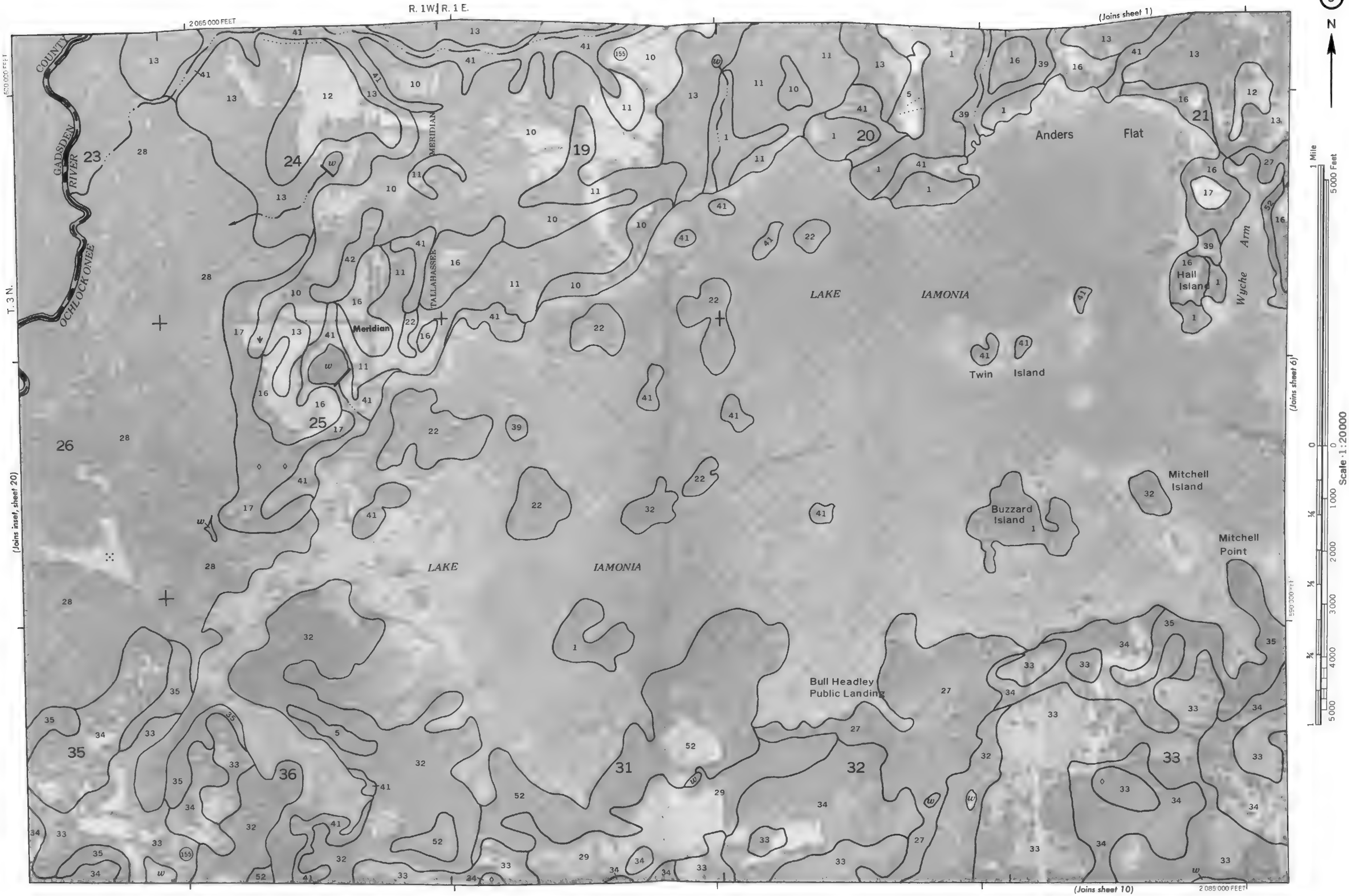



N
Scale 1:20000
1 Mile
5000 Feet
R. 1 E. | R. 2 E.
2 105 000 FEET
615 000 FEET
T. 3 N.
605 000 FEET
2 090 000 FEET
GRADY COUNTY GEORGIA
WATSON LINE
Iamonia
Strickland Arm
(Joins sheet 1)
(Joins sheet 3)
(Joins sheet 6)

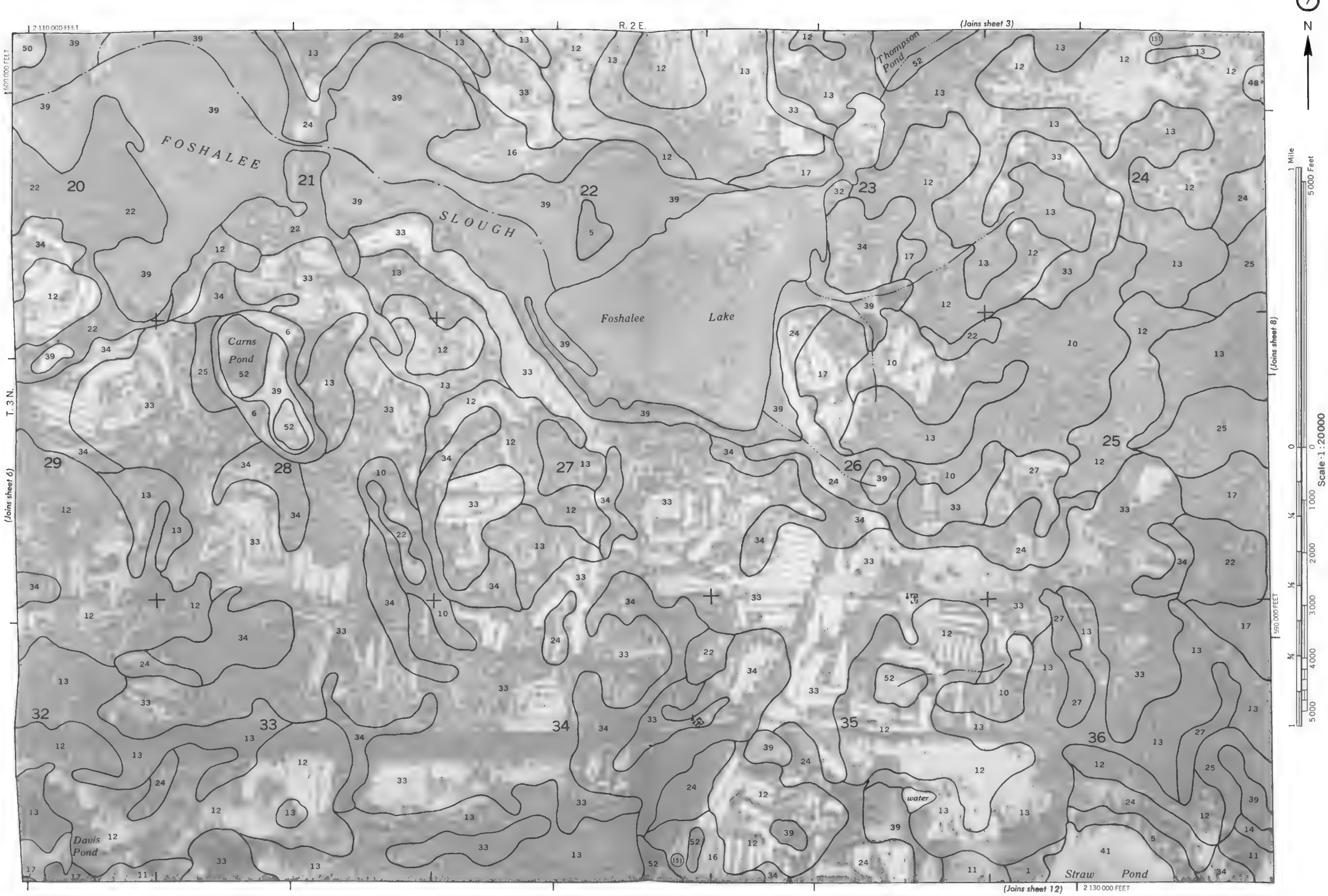

3
N
2 110 000 FEET
R. 2 E.
615 000 FEET
T. 3 N.
GRADY COUNTY GEORGIA
THOMAS COUNTY GEORGIA
(Joins sheet 2)
(Joins sheet 4)
(Joins sheet 7)
WATSON LINE
FOSHALEE SLOUGH
Thompson Pond
605 000 FEET
2 130 000 FEET
1 Mile
5000 Feet
Scale 1:20000

LEON COUNTY, FLORIDA — SHEET NUMBER 4

LEON COUNTY, FLORIDA — SHEET NUMBER 5




6
N
(Joins sheet 2)
R. 1 E. R. 2 E.
2 105 000 FEET
Van Brunt Arm
Jake Hole
Island
Sheep
LAKE IAMONIA
Strickland Arm
FOSHALEE SLOUGH
Horseshoe Plantation Landing Field
Lester Island
Cromartie Arm
Davis Pond
(Joins sheet 5)
(Joins sheet 7)
T. 3 N.
(Joins sheet 11)
2 090 000 FEET
1 Mile
5000 Feet
Scale 1:20000


7
N
2 110 000 FEET
500 000 FEET
R. 2 E.
(Joins sheet 3)
(Joins sheet 6)
(Joins sheet 8)
(Joins sheet 12)
T. 3 N.
590 000 FEET
2 130 000 FEET
FOSHALEE SLOUGH
Foshalee Lake
Carns Pond
Thompson Pond
Davis Pond
Straw Pond
water
1 Mile
5000 Feet
Scale 1:20000
20
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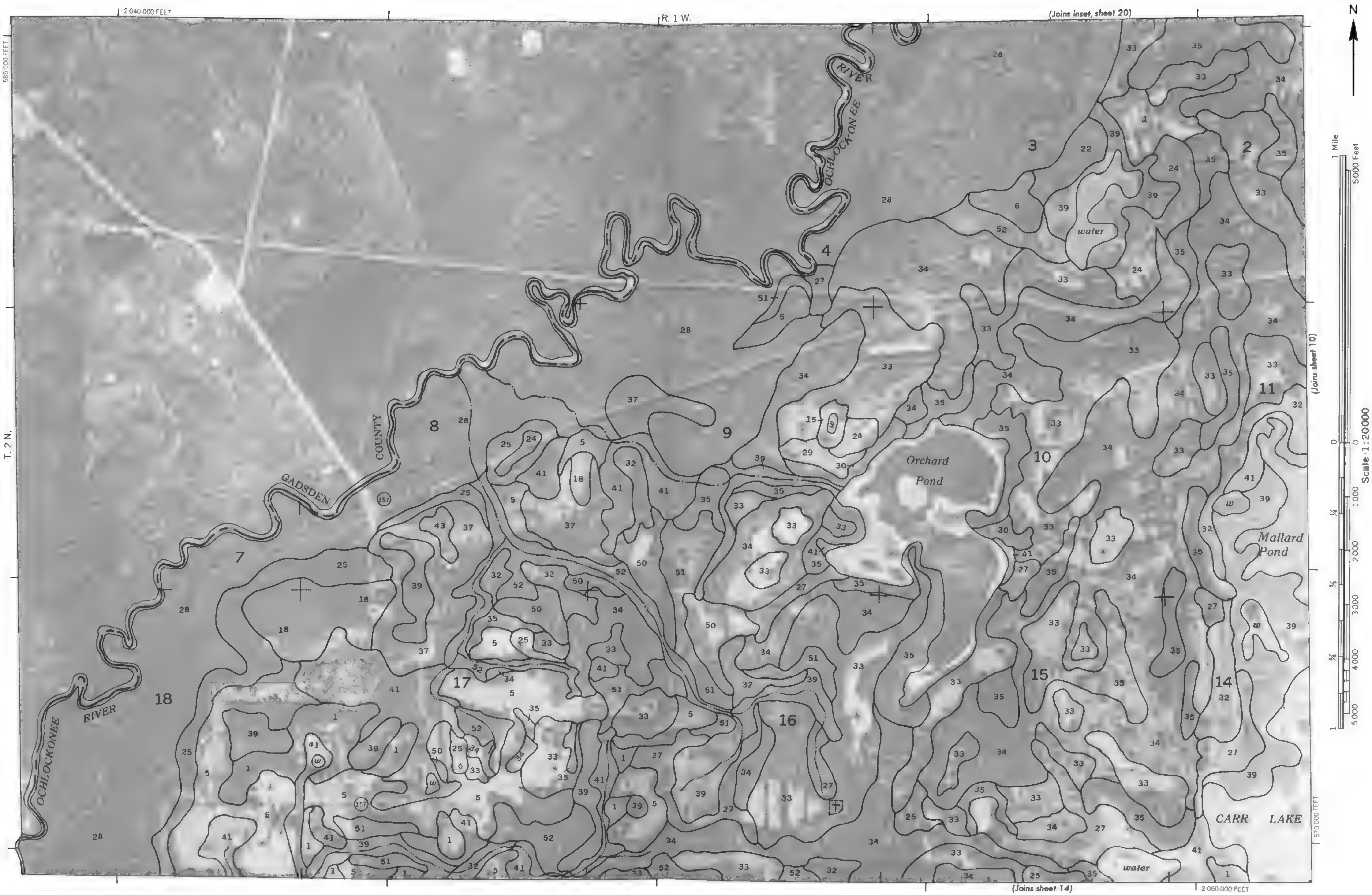
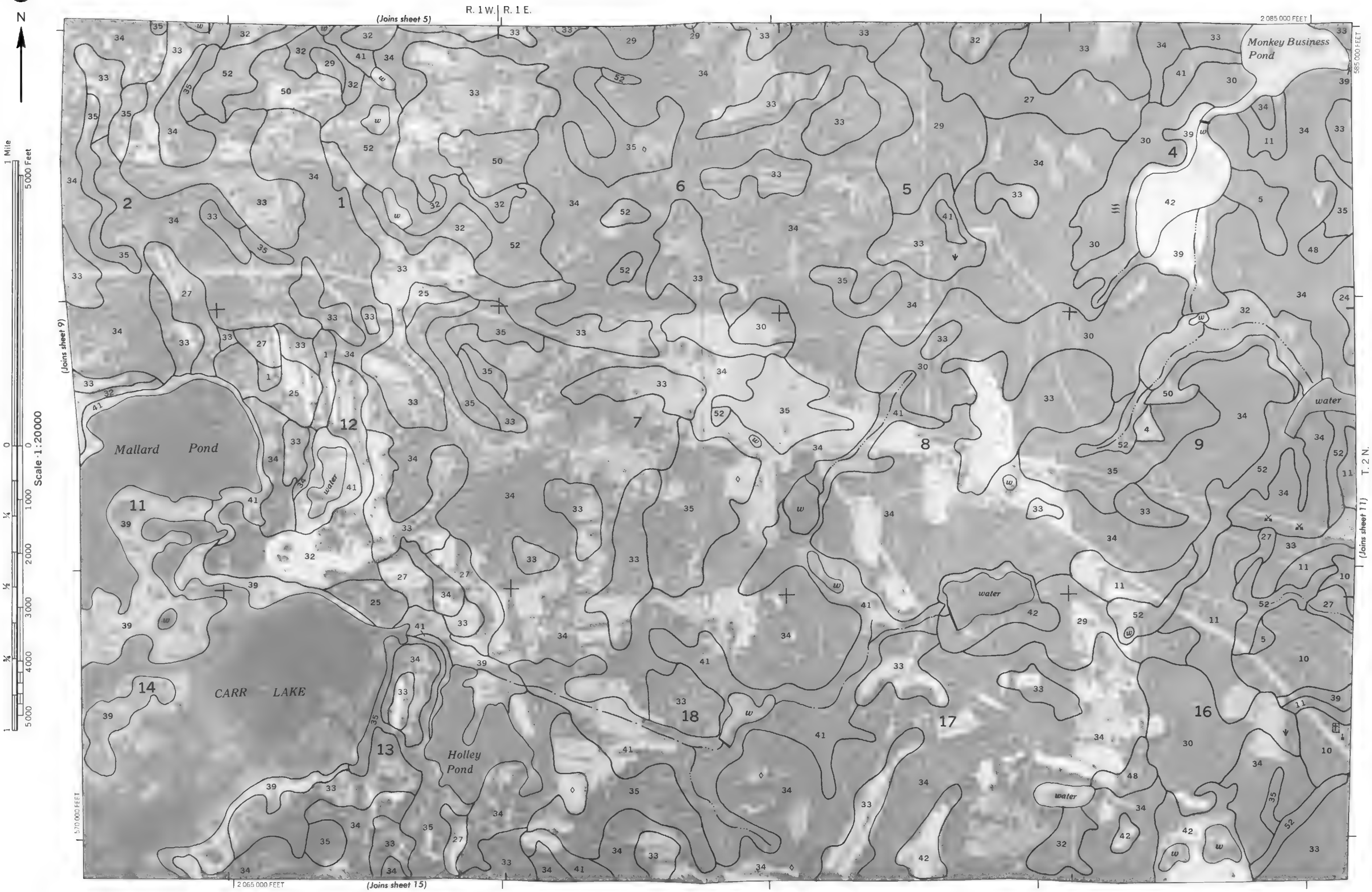
LEON COUNTY, FLORIDA — SHEET NUMBER 8

9


N
2 040 000 FEET
R. 1 W.
(Joins inset, sheet 20)
585 000 FEET
T. 2 N.
OCHLOCKONEE RIVER
GADSDEN COUNTY
Orchard Pond
Mallard Pond
CARR LAKE
water
(Joins sheet 10)
(Joins sheet 14)
570 000 FEET
2 060 000 FEET
Scale 1:20000
1 Mile
5000 Feet

LEON COUNTY, FLORIDA — SHEET NUMBER 10



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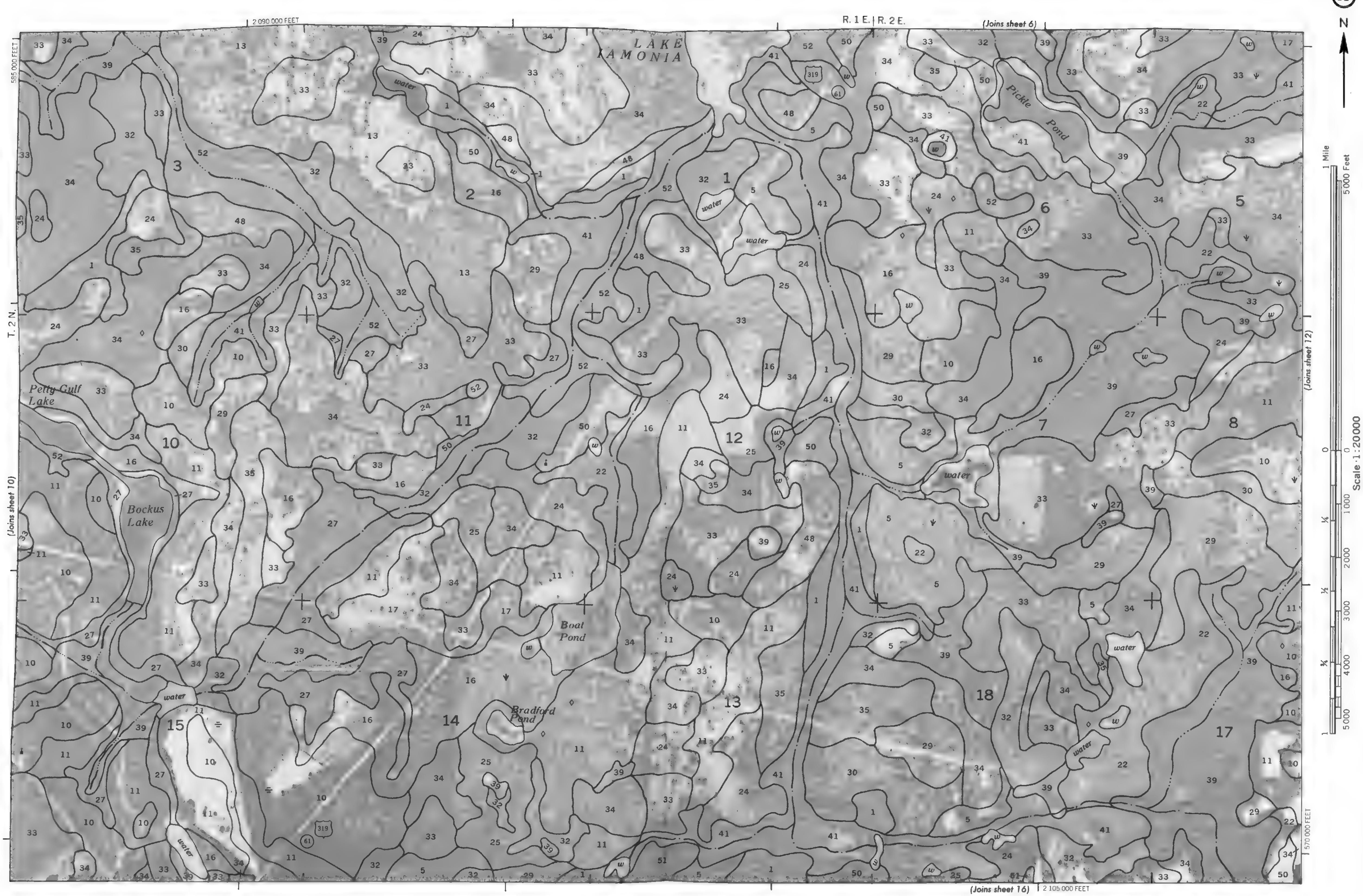
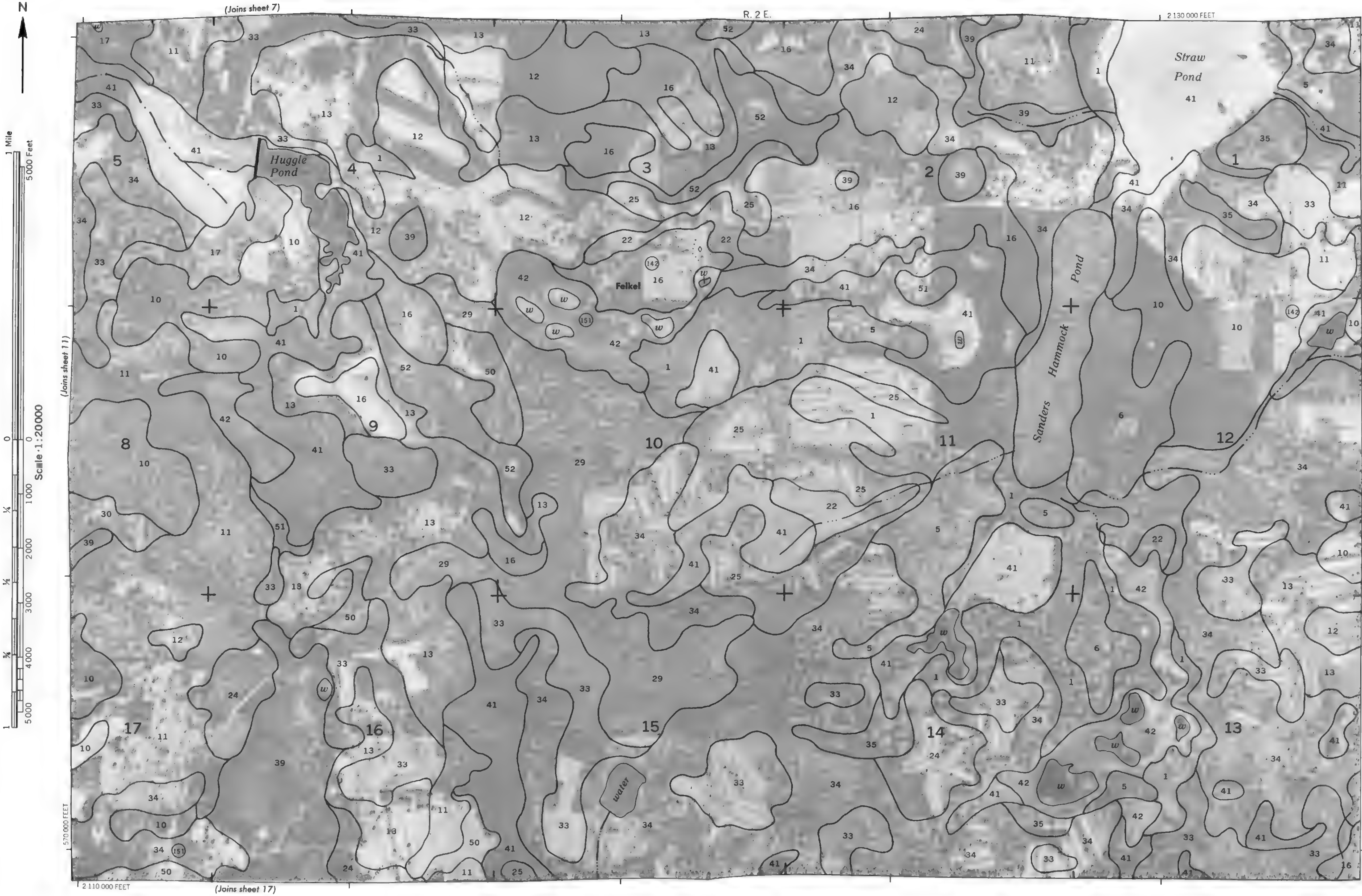
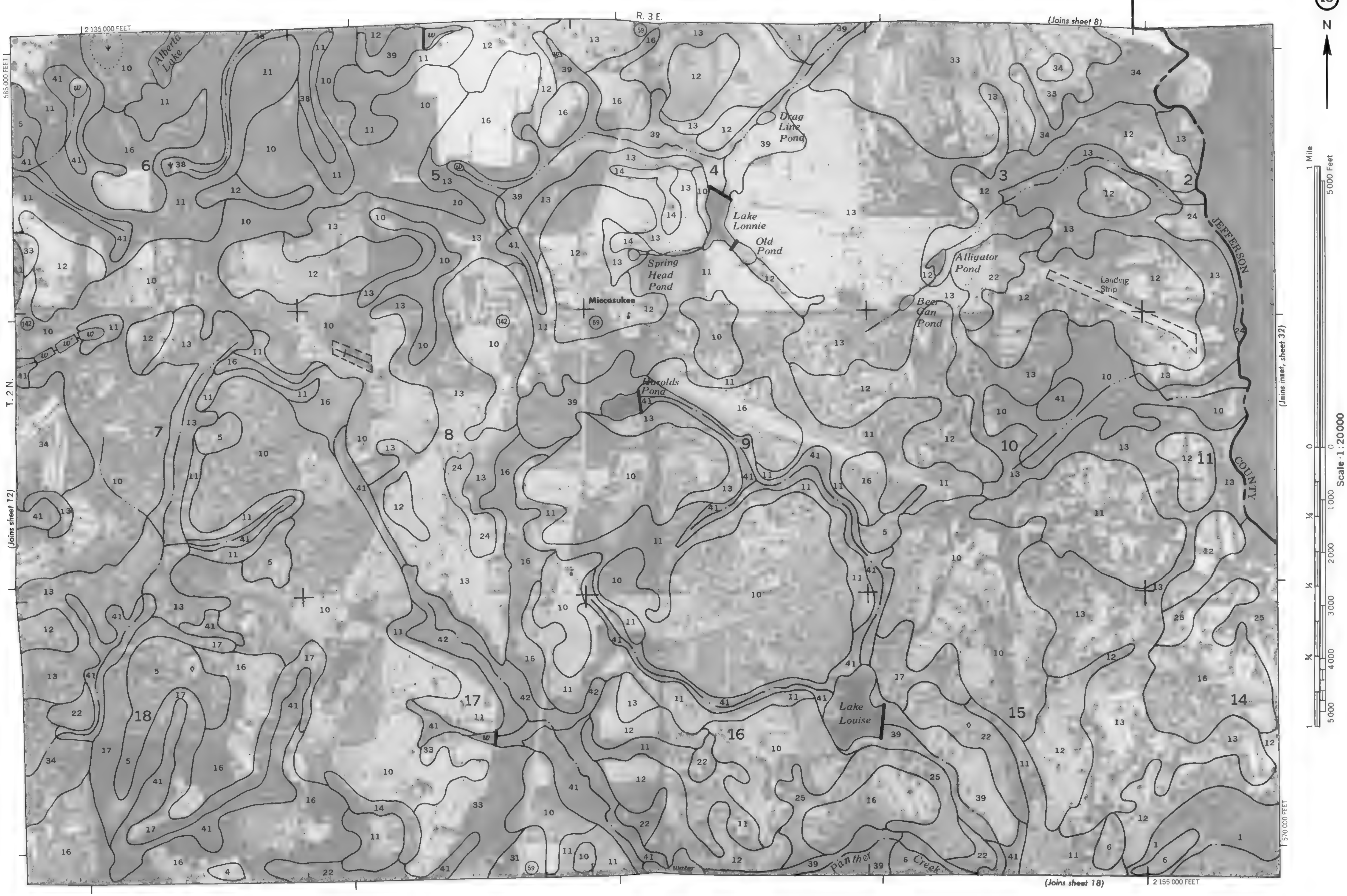



N
1 Mile
5000 Feet
Scale 1:20000
(Joins sheet 7)
R. 2 E.
2 130 000 FEET
585 000 FEET
Straw Pond
Huggle Pond
Felkel
Sanders Hammock Pond
water
(Joins sheet 11)
T. 2 N.
(Joins sheet 13)
570 000 FEET
2 110 000 FEET
(Joins sheet 17)

LEON COUNTY, FLORIDA — SHEET NUMBER 13

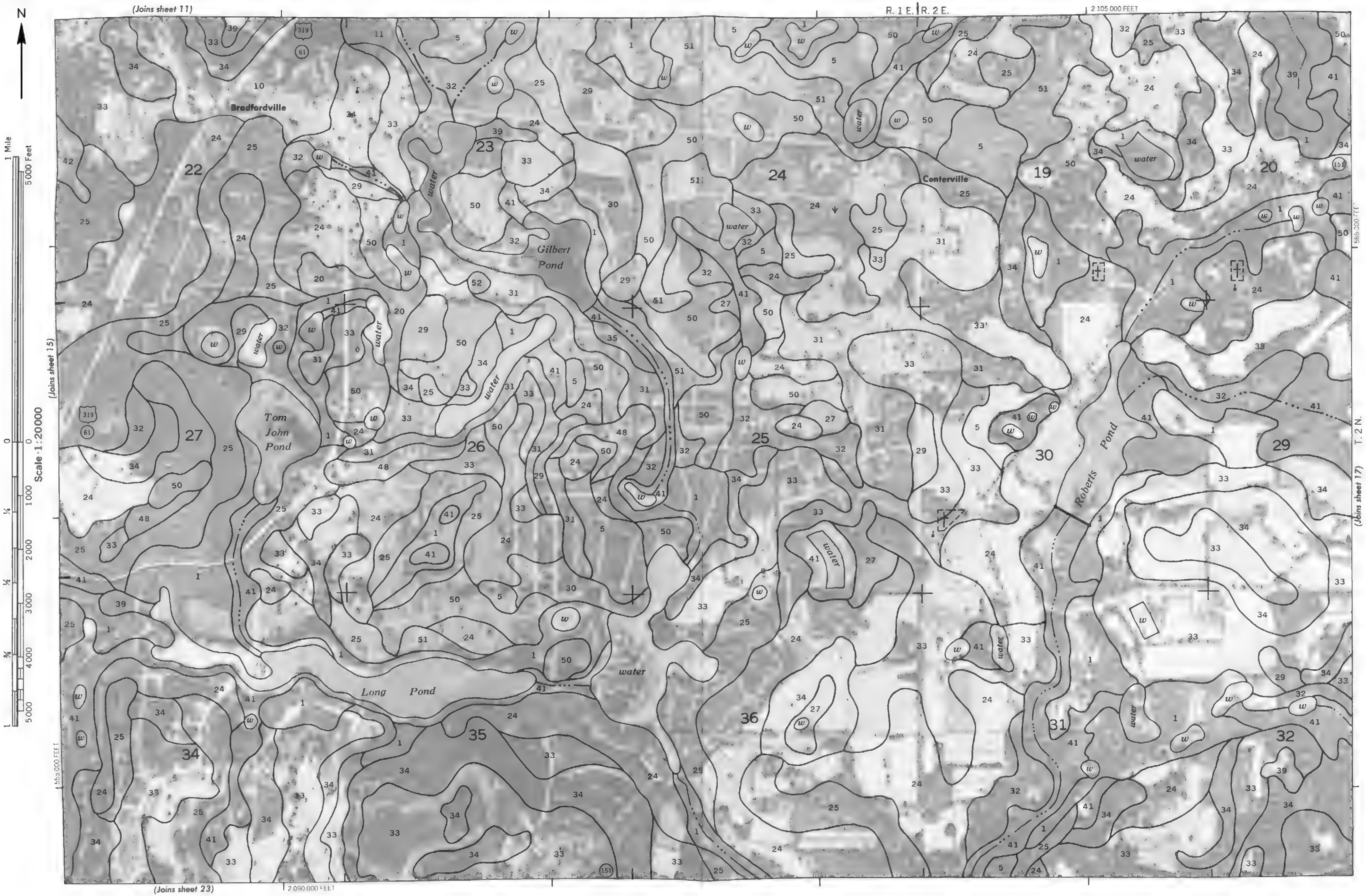


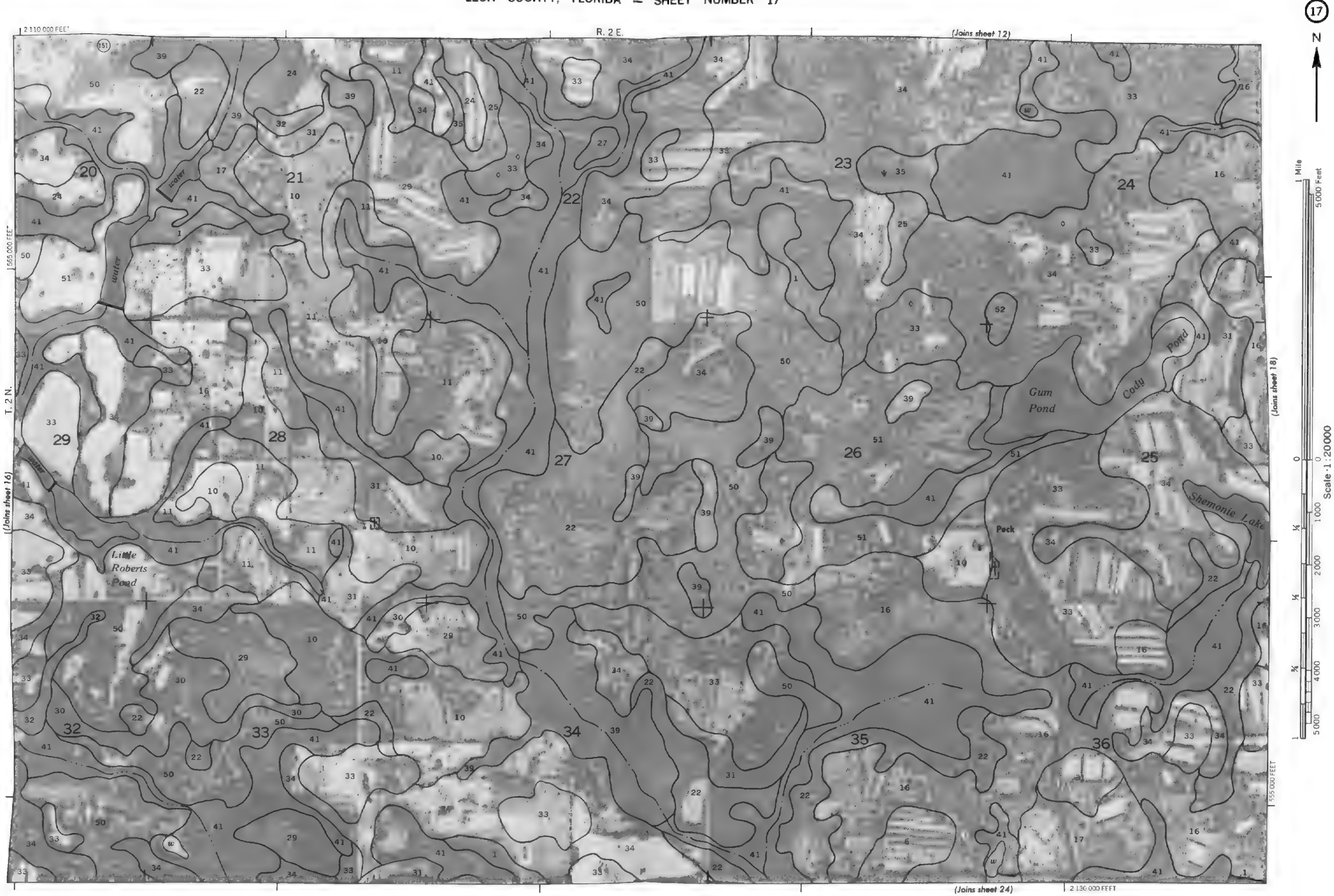

N
(Joins sheet 9)
R. 1 W.
2 060 000 FEET
CARR LAKE
CARR LAKE
Tallahassee Commercial Airport
LAKE JACKSON
Rollins Point
Public Landing
Millers Public Landing
Brill Point
Sunset Public Landing
Lake Jackson
SEABOARD
COAST LINE
T. 2 N.
(Joins sheet 15)
(Joins inset, sheet 19)
(Joins sheet 21)
2 040 000 FEET
565 000 FEET
1 Mile
5000 Feet
Scale 1:20000
50+51


R. 1 W. | R. 1 E.
2 065 000 FEET
(Joins sheet 10)
N
(Joins sheet 14)
(Joins sheet 16)
(Joins sheet 22)
2 085 000 FEET
565 000 FEET
555 000 FEET
T. 2 N.
MERIDIAN
TALLAHASSEE
MERIDIAN
TALLAHASSEE
19
20
21
23
24
25
26
28
29
30
31
32
33
35
36
Moore Pond
Ox Bottom
Lake Elizabeth
Lake McBride
Lake Overstreet
Lake Hall
Oak Knoll Estates
ALFORD B. MACLAY STATE ORNAMENTAL GARDENS
water
1 Mile
5000 Feet
Scale 1:20000

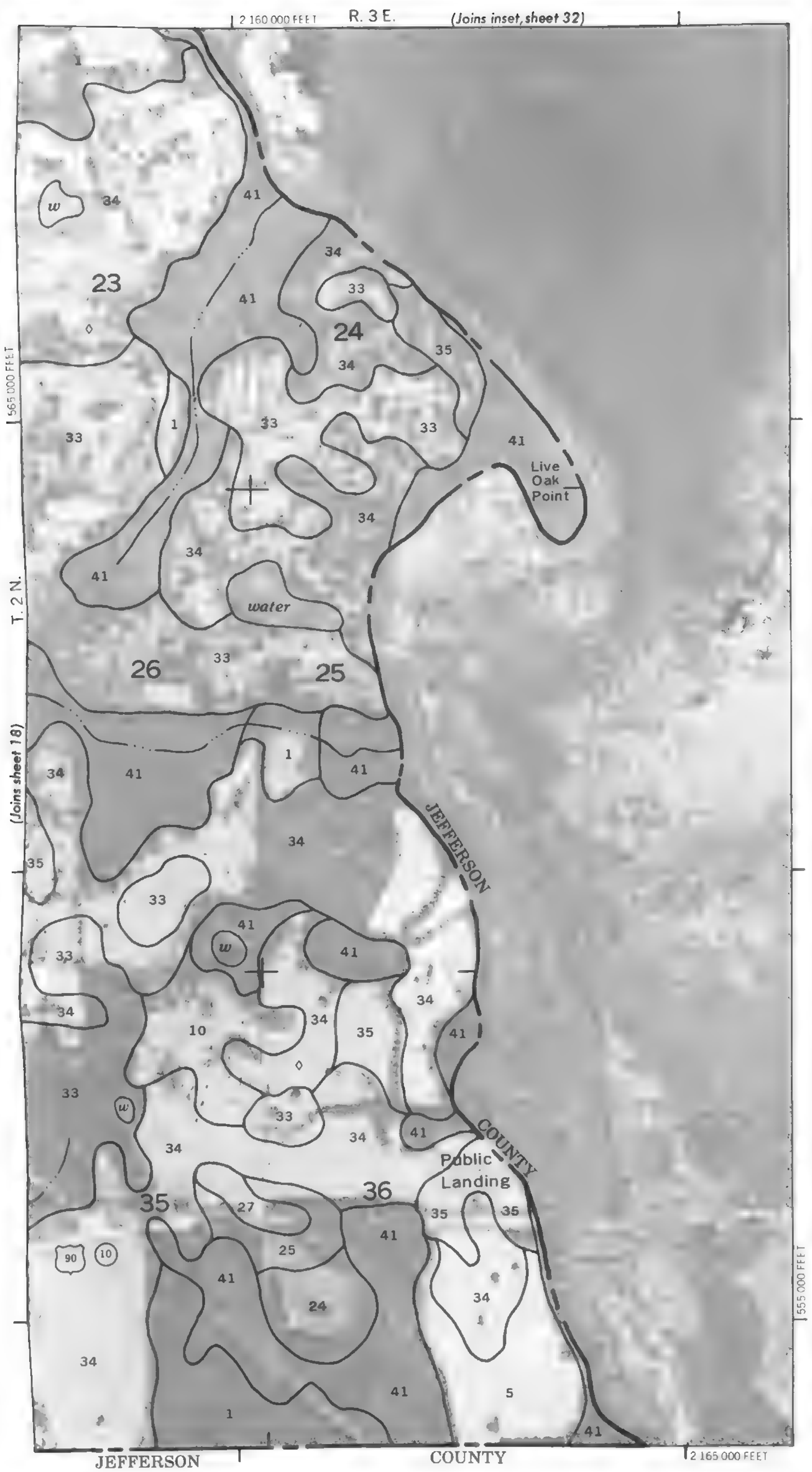
16

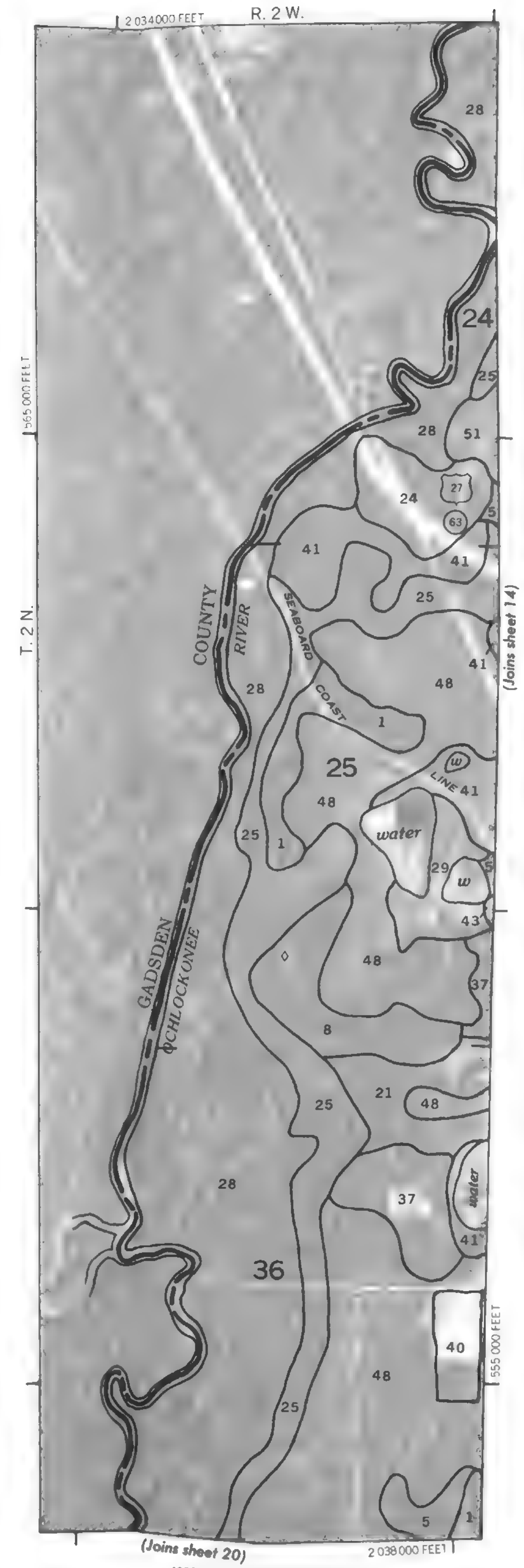
LEON COUNTY, FLORIDA — SHEET NUMBER 16

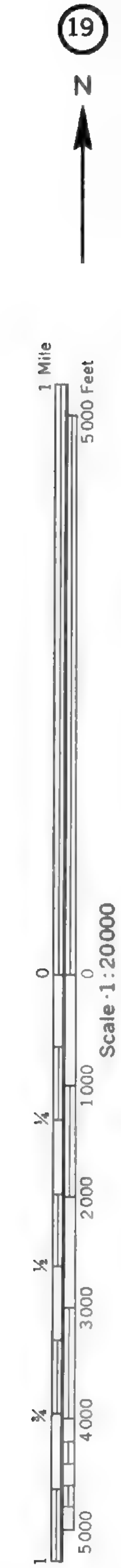



17
N
2 110 000 FEET
R. 2 E.
(Joins sheet 12)
565 000 FEET
T. 2 N.
(Joins sheet 16)
(Joins sheet 18)
(Joins sheet 24)
2 130 000 FEET
555 000 FEET
Little Roberts Pond
Gum Pond
Cody Pond
Shemonie Lake
Peck
water
1 Mile
5000 Feet
Scale 1:20000

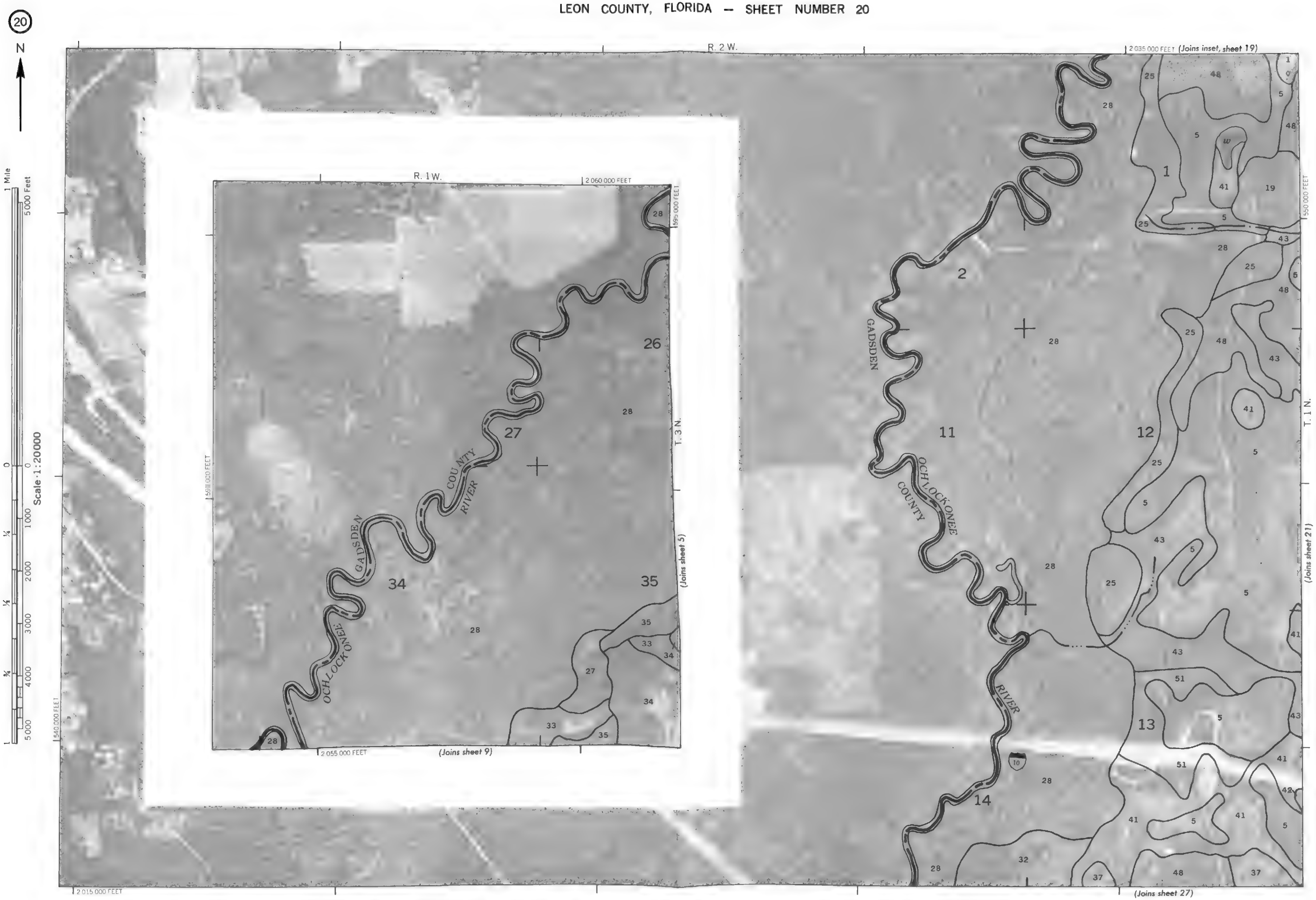

N
1 Mile
5000 Feet
Scale 1:20000
(Joins sheet 13)
R. 3 E.
2 155 000 FEET
Concord
water
Panther
Creek
(Joins sheet 17)
Shemonie
Lake
T. 2 N.
(Joins sheet 19)
555 000 FEET
2 135 000 FEET
(Joins sheet 25)
JEFFERSON
COUNTY


2 160 000 FEET
R. 3 E.
(Joins inset, sheet 32)
565 000 FEET
T. 2 N.
(Joins sheet 18)
Live Oak Point
water
JEFFERSON
COUNTY
Public Landing
90
10
555 000 FEET
JEFFERSON
COUNTY
2 165 000 FEET
23
24
25
26
35
36
33
34
41
1
w


2 034 000 FEET
R. 2 W.
565 000 FEET
T. 2 N.
GADSDEN
COUNTY
OCHLOCKONEE
RIVER
SEABOARD
COAST
LINE
27
63
water
(Joins sheet 14)
555 000 FEET
(Joins sheet 20)
2 038 000 FEET
4000 AND 5000-FOOT GRID TICKS
24
25
28
36
37
40
41
48
51


19
N
1 Mile
5000 Feet
Scale 1:20000
0
¼
½
¾
1
1000
2000
3000
4000
5000

LEON COUNTY, FLORIDA — SHEET NUMBER 20

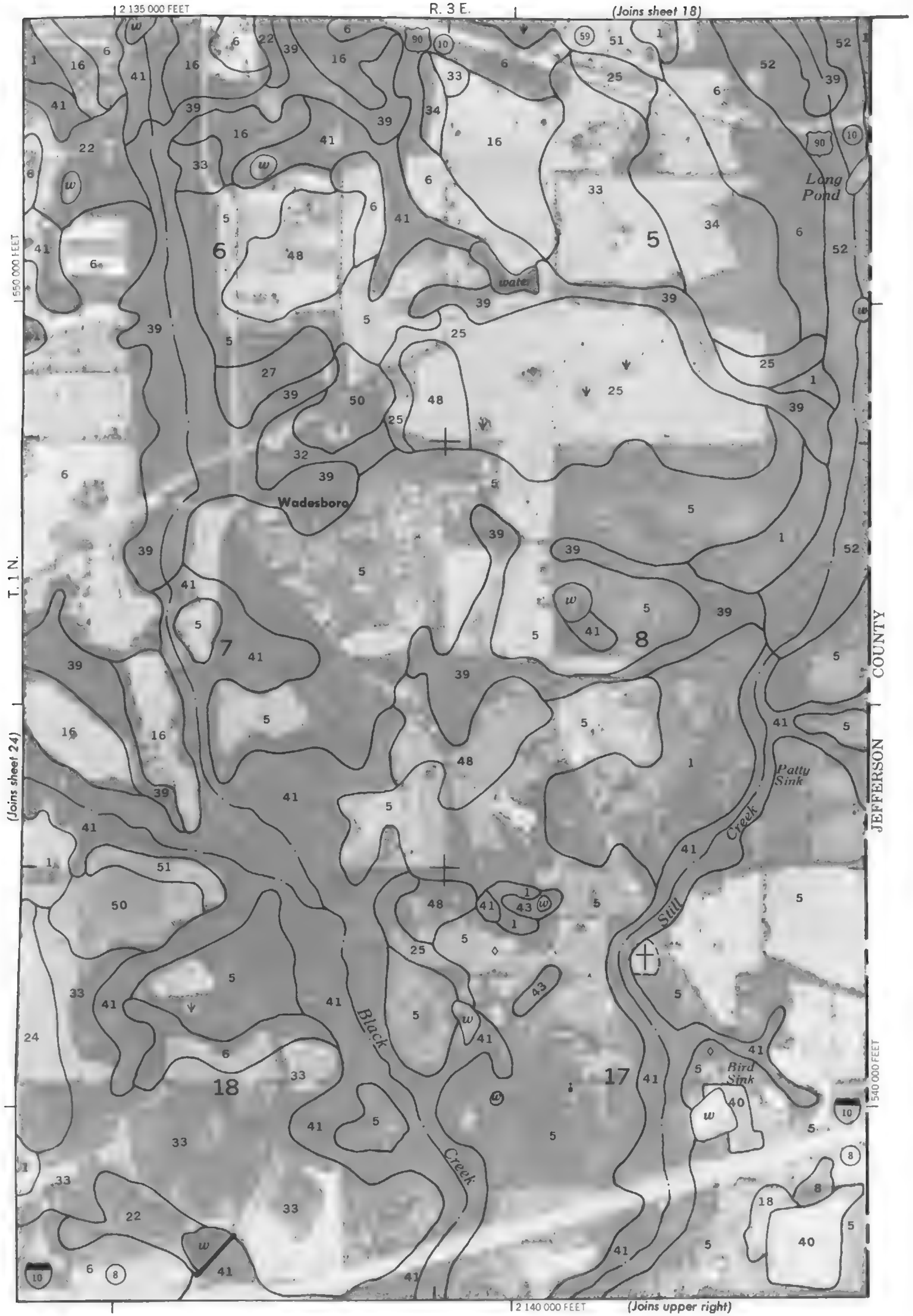


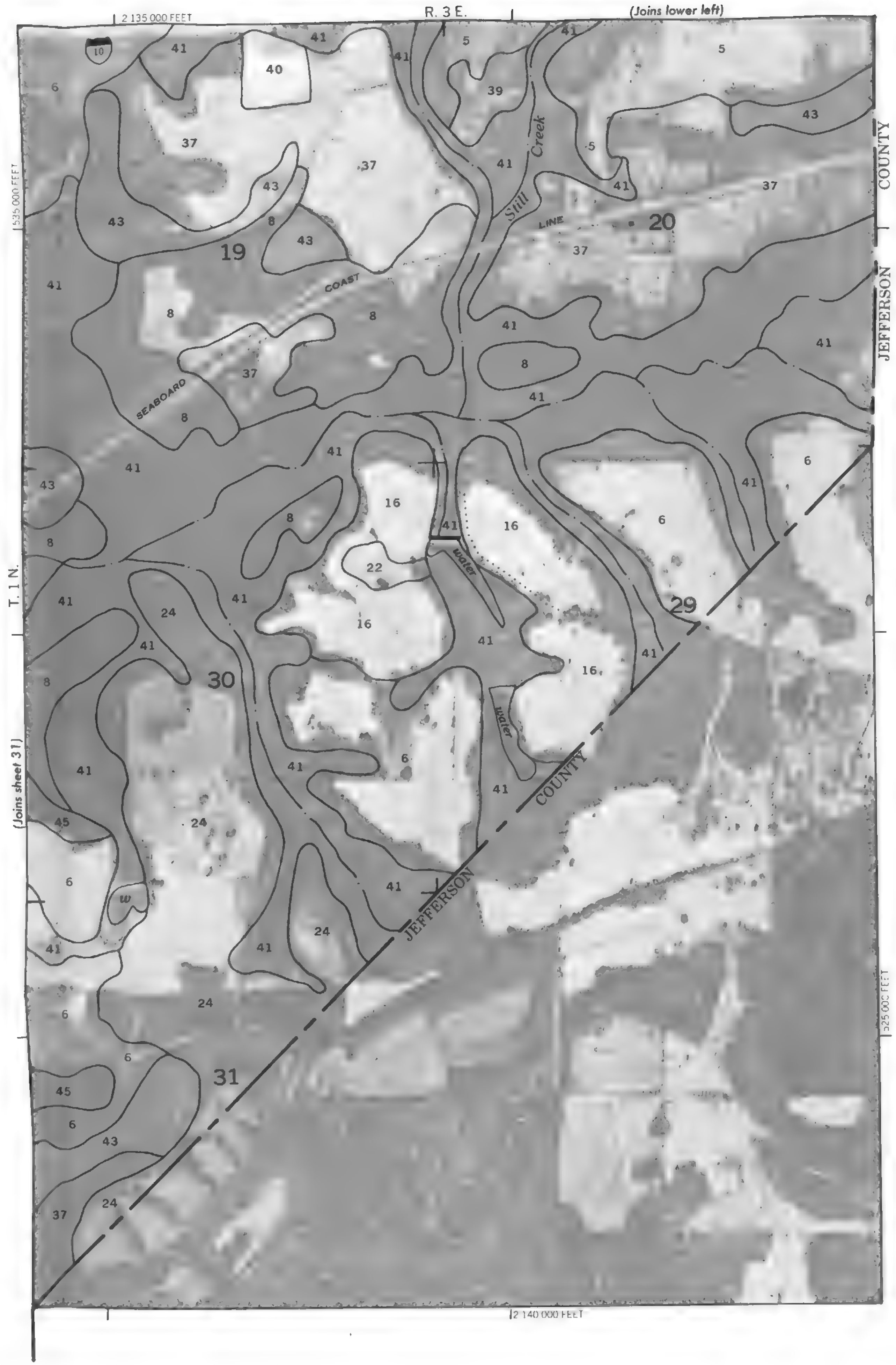
(Joins sheet 14)
(Joins sheet 20)
(Joins sheet 22)
(Joins sheet 28)
2 040 000 FEET
2 060 000 FEET
550 000 FEET
R. 1 W.
T. 1 N.
LAKE JACKSON
Harbinwood Estates
Bellwood Estates
INDIAN MOUNDS STATE PARK
Public Landing
Meginnis Arm
SEABOARD COAST LINE
water
N
1 Mile
5000 Feet
Scale 1:20000

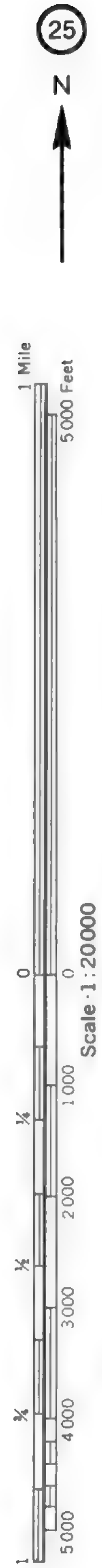

N
(Joins sheet 15)
R. 1 W. | R. 1 E.
2 085 000 FEET
Lake Hall
LAKE JACKSON
Rhoden Cove
Public Landing
Fords Arm
Bridle Path Acres
MERIDIAN
TALLAHASSEE
550 000 FEET
T. 1 N.
(Joins sheet 21)
(Joins sheet 23)
(Joins sheet 29)
2 065 000 FEET
540 000 FEET
TALLAHASSEE
water
1 Mile
5000 Feet
Scale 1:20000
0
¼
½
¾
1
0
1000
2000
3000
4000
5000


2 090 000 FEET
R. 1 E. | R. 2 E.
(Joins sheet 16)
(Joins sheet 22)
(Joins sheet 24)
(Joins sheet 30)
T. 1 N.
540 000 FEET
2 110 000 FEET
N
1 Mile
5000 Feet
Scale 1:20000
water

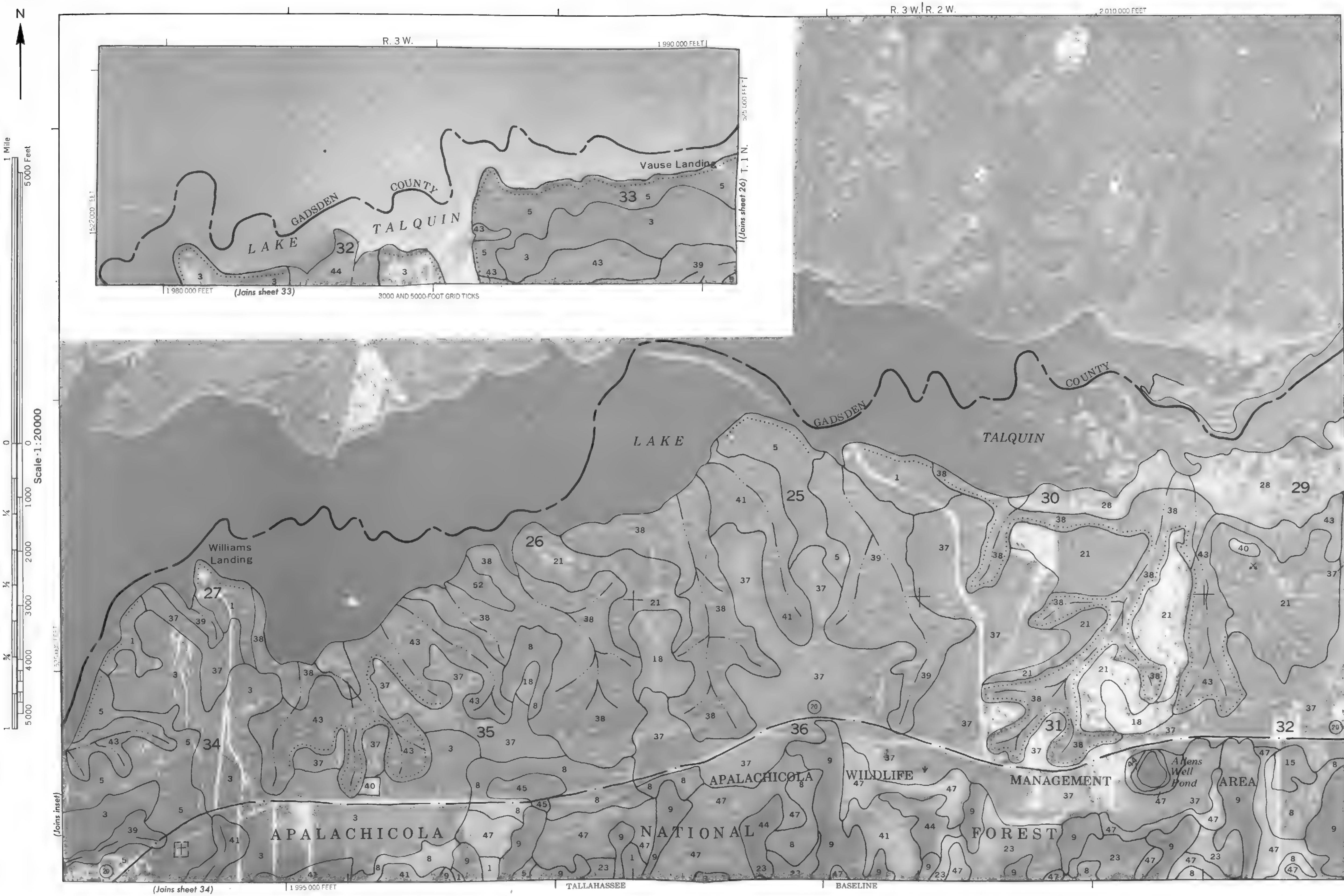
LEON COUNTY, FLORIDA — SHEET NUMBER 24

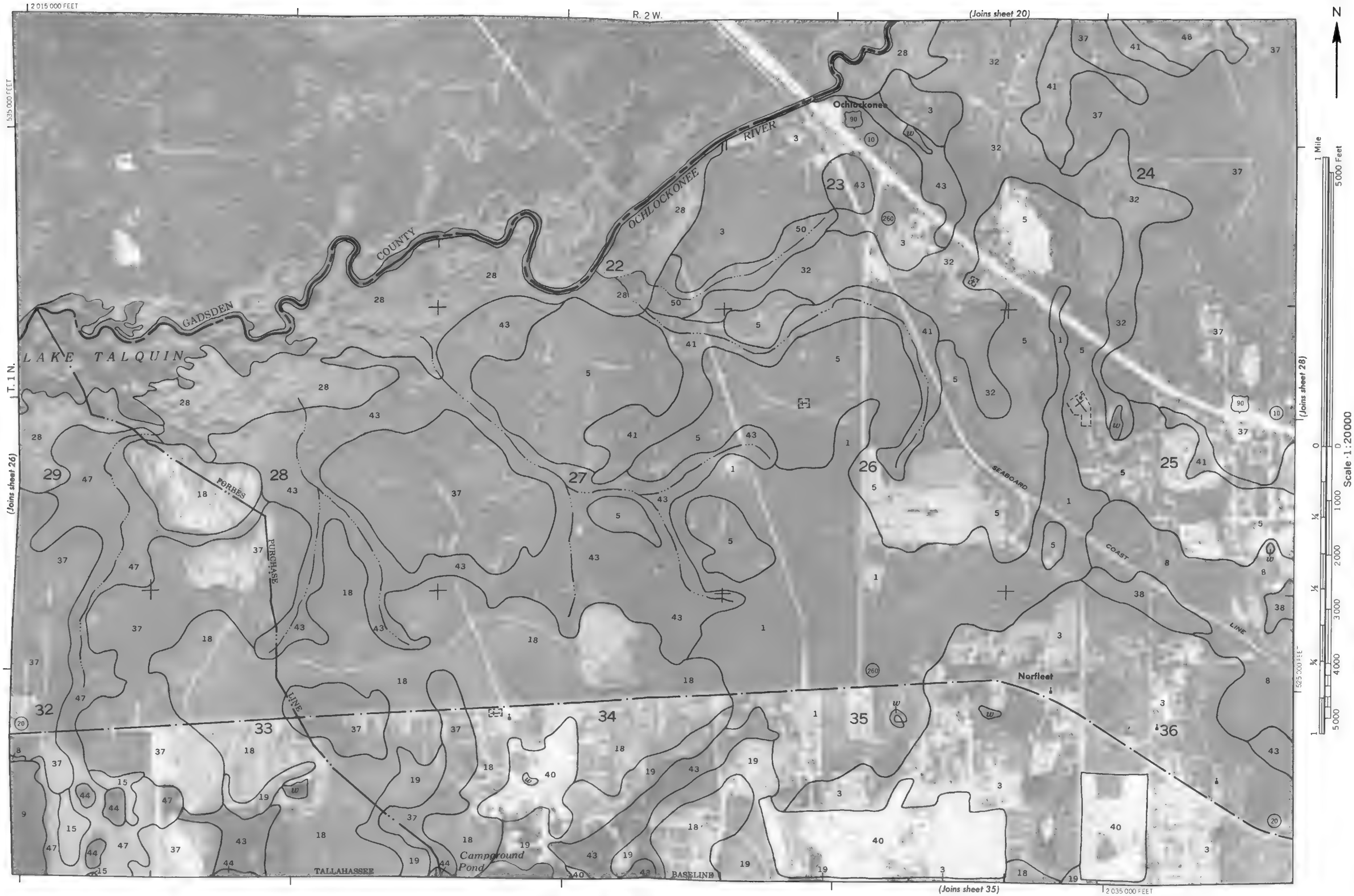

2 135 000 FEET
R. 3 E.
(Joins sheet 18)
T. 1 N.
(Joins sheet 24)
2 140 000 FEET
(Joins upper right)
Wadesboro
Long Pond
Patty Sink
Bird Sink
Black Creek
Still Creek
JEFFERSON COUNTY
550 000 FEET
540 000 FEET


2 135 000 FEET
R. 3 E.
(Joins lower left)
T. 1 N.
(Joins sheet 31)
2 140 000 FEET
SEABOARD COAST LINE
Still Creek
JEFFERSON COUNTY
535 000 FEET
525 000 FEET


25
N
1 Mile
5 000 Feet
Scale 1:20000

LEON COUNTY, FLORIDA — SHEET NUMBER 26

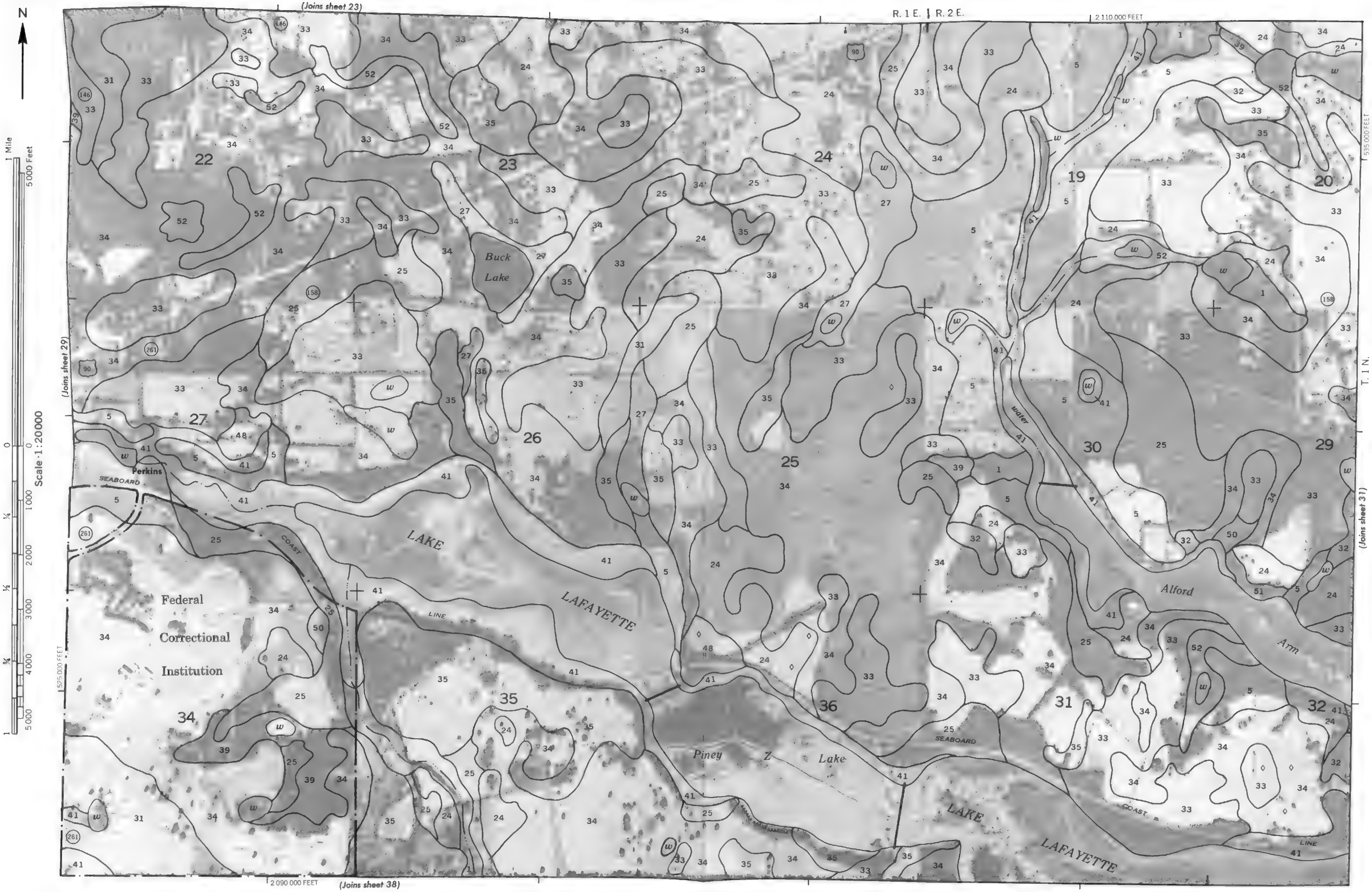



N
2 015 000 FEET
535 000 FEET
R. 2 W.
(Joins sheet 20)
(Joins sheet 26)
(Joins sheet 28)
(Joins sheet 35)
T. 1 N.
2 035 000 FEET
525 000 FEET
LAKE TALQUIN
GADSDEN COUNTY
OCHLOCKONEE RIVER
Ochlockonee
FORBES PURCHASE LINE
SEABOARD COAST LINE
Norfleet
Campground Pond
TALLAHASSEE BASELINE
1 Mile
5000 Feet
Scale 1:20000
0
1000
2000
3000
4000
5000

28

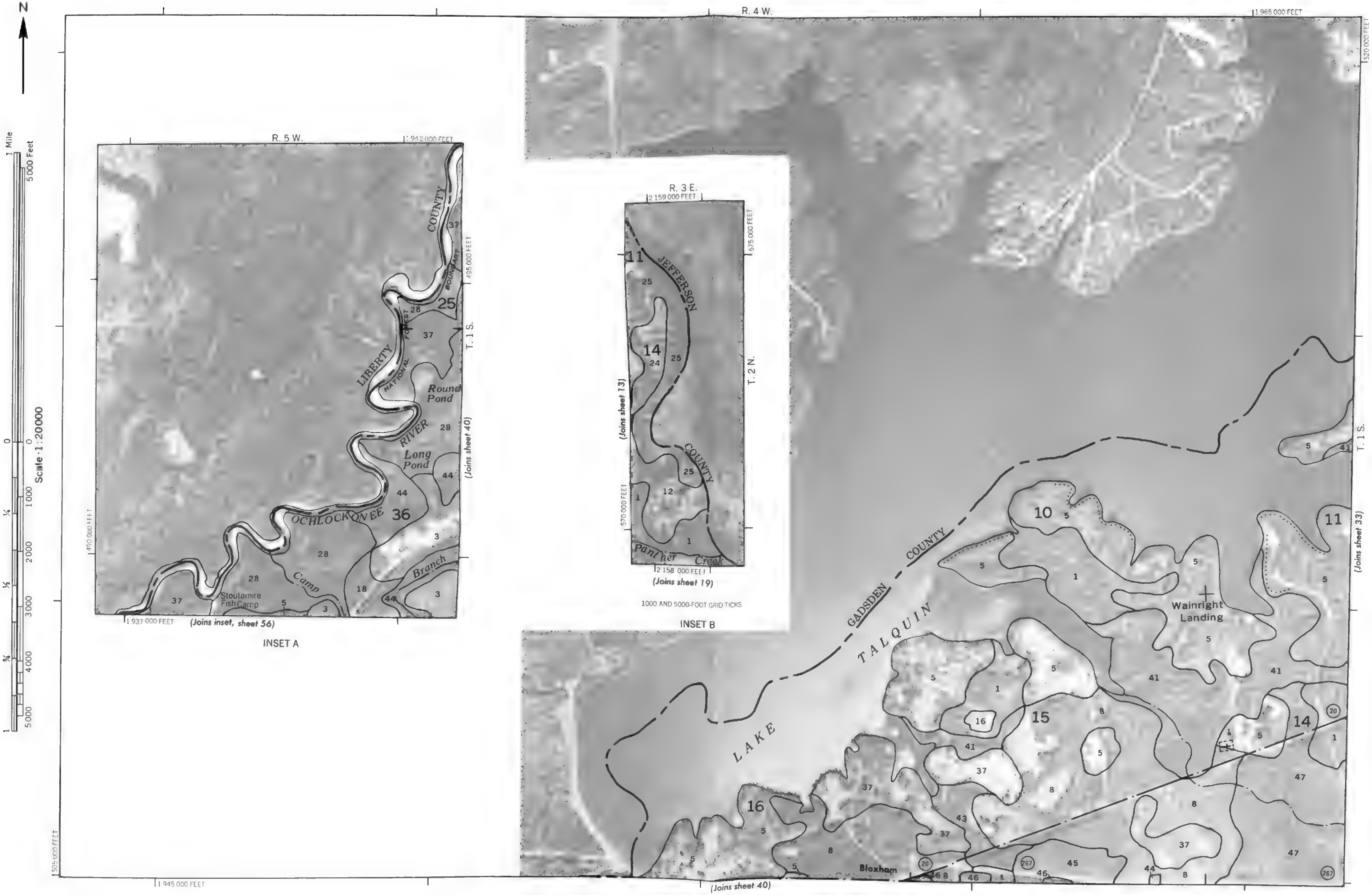
LEON COUNTY, FLORIDA — SHEET NUMBER 28

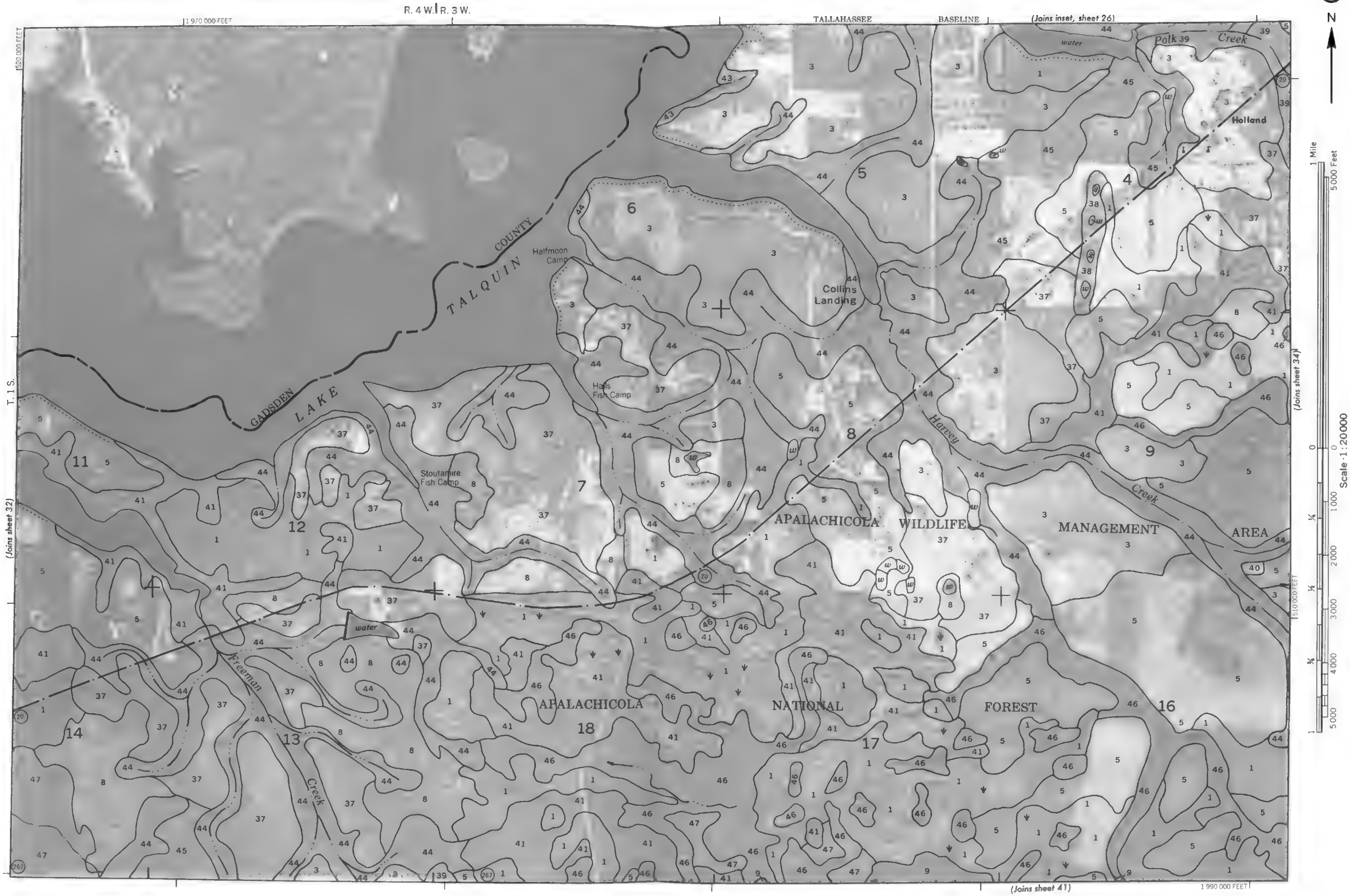
LEON COUNTY, FLORIDA — SHEET NUMBER 29

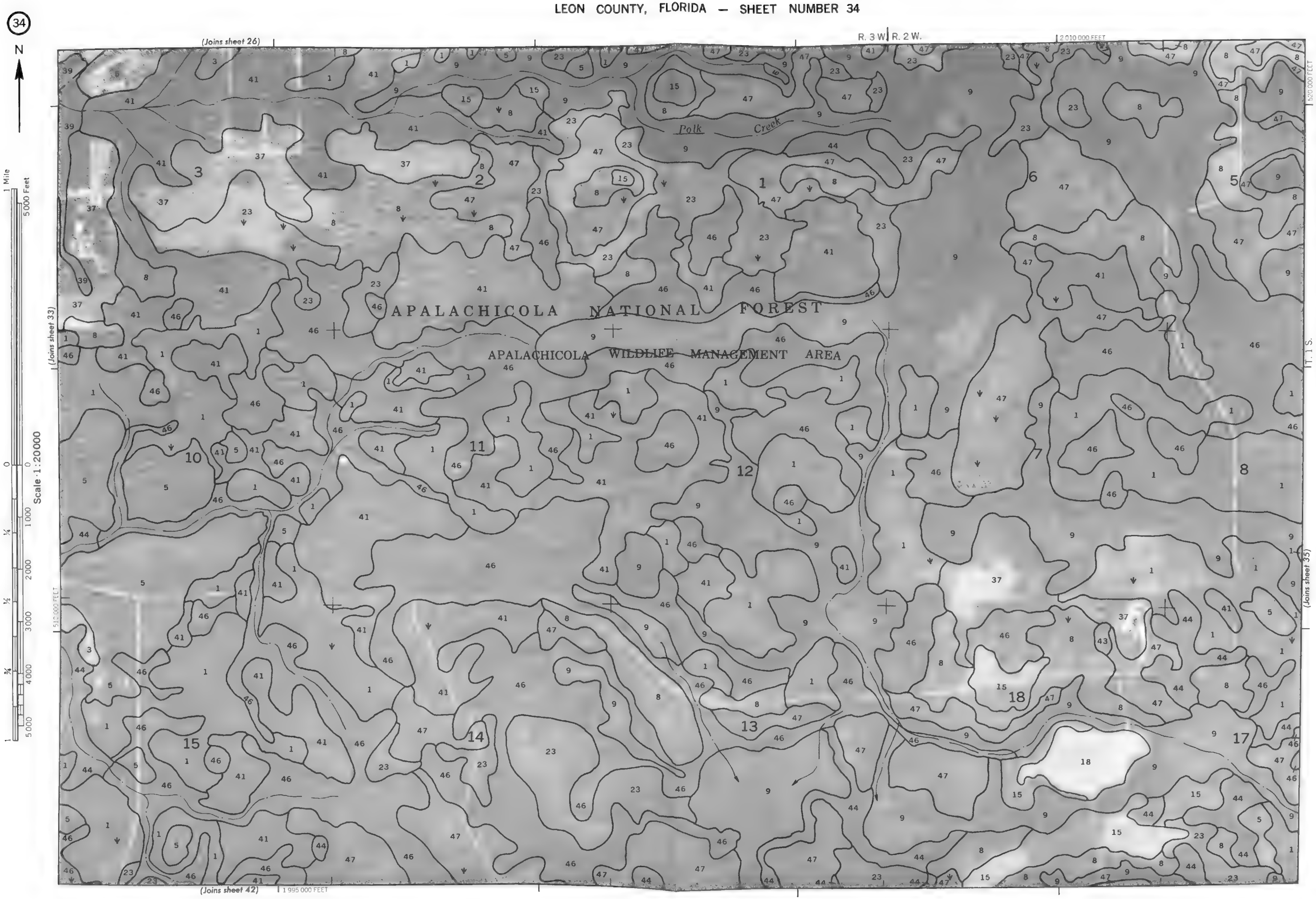

N
(Joins sheet 23)
R. 1 E. | R. 2 E.
2 110 000 FEET
535 000 FEET
T. 1 N.
(Joins sheet 29)
(Joins sheet 31)
(Joins sheet 38)
2 090 000 FEET
525 000 FEET
1 Mile
5000 Feet
Scale 1:20000
Buck Lake
Perkins
SEABOARD COAST LINE
LAKE LAFAYETTE
Federal Correctional Institution
Piney Z Lake
Alford Arm
water

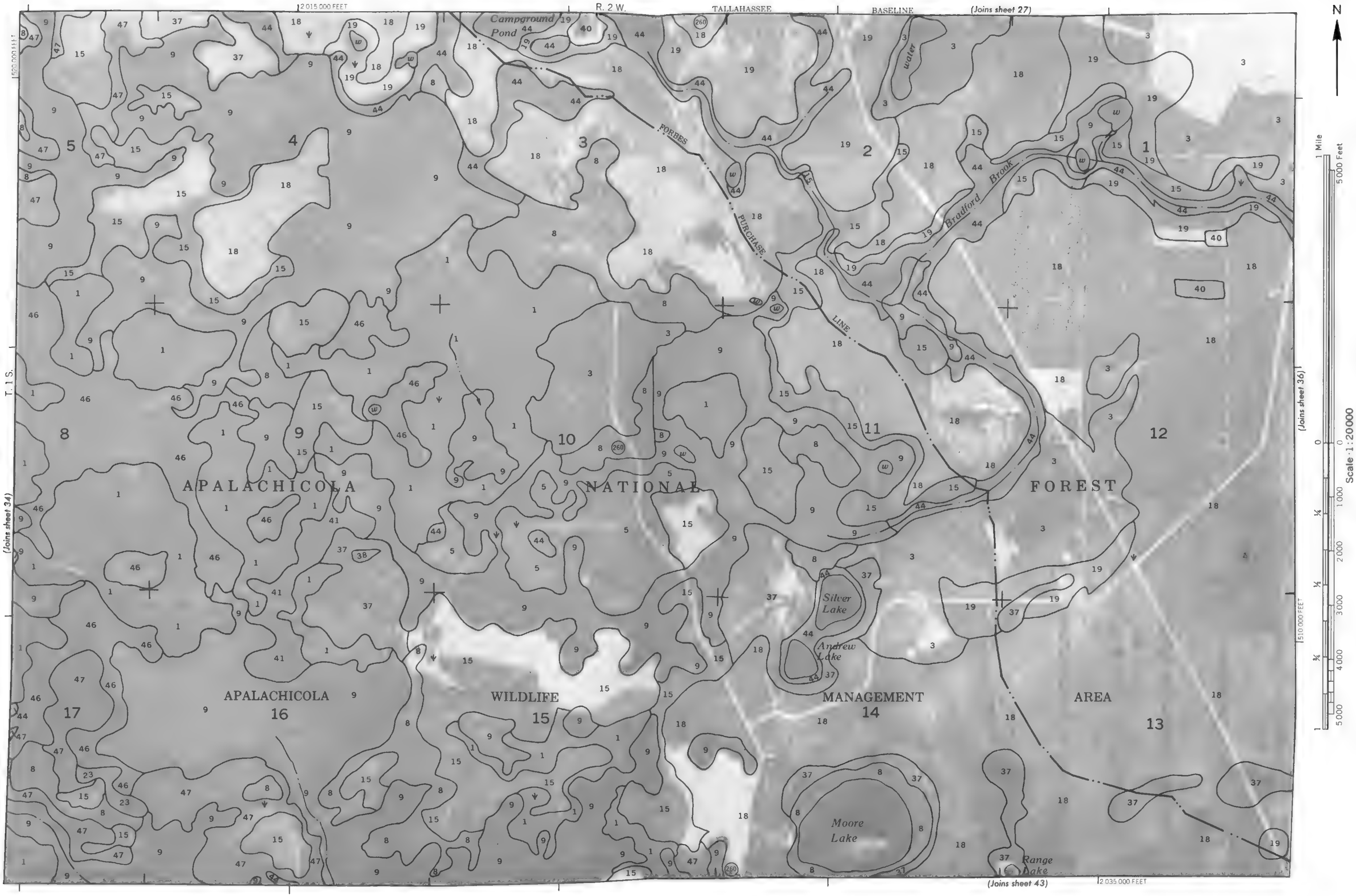

31
N
(Joins sheet 24)
(Joins sheet 39)
(Joins sheet 30)
(Joins inset, sheet 25)
R. 2 E.
T. 1 N.
2 115 000 FEET
2 130 000 FEET
535 000 FEET
525 000 FEET
water
Fish Hatchery
Copeland Sink
Capitola
Upchurch Pond
Chaires
SEABOARD COAST LINE
LAKE LAFAYETTE
1 Mile
5000 Feet
Scale 1:20000

LEON COUNTY, FLORIDA — SHEET NUMBER 32




R. 4 W. | R. 3 W.
1 970 000 FEET
TALLAHASSEE
BASELINE
(Joins inset, sheet 26)
Polk Creek
water
Holland
520 000 FEET
TALQUIN LAKE
GADSDEN COUNTY
Halfmoon Camp
Collins Landing
Halls Fish Camp
Stoutamire Fish Camp
Harvey Creek
APALACHICOLA WILDLIFE MANAGEMENT AREA
APALACHICOLA NATIONAL FOREST
Freeman Creek
T. 1 S.
(Joins sheet 32)
(Joins sheet 34)
510 000 FEET
(Joins sheet 41)
1 990 000 FEET
N
1 Mile
5000 Feet
Scale 1:20000


34
N
(Joins sheet 26)
R. 3 W. | R. 2 W.
2 010 000 FEET
520 000 FEET
Polk Creek
APALACHICOLA NATIONAL FOREST
APALACHICOLA WILDLIFE MANAGEMENT AREA
(Joins sheet 33)
(Joins sheet 35)
T. 1 S.
510 000 FEET
(Joins sheet 42)
1 995 000 FEET
1 Mile
5000 Feet
Scale 1:20000


2 015 000 FEET
R. 2 W.
TALLAHASSEE
BASELINE
(Joins sheet 27)
Campground Pond
FORBES PURCHASE LINE
Bradford Brook
T. 1 S.
520 000 FEET
(Joins sheet 34)
(Joins sheet 36)
510 000 FEET
APALACHICOLA NATIONAL FOREST
APALACHICOLA WILDLIFE MANAGEMENT AREA
Silver Lake
Andrew Lake
Moore Lake
Range Lake
(Joins sheet 43)
2 035 000 FEET
N
1 Mile
5000 Feet
Scale 1:20000

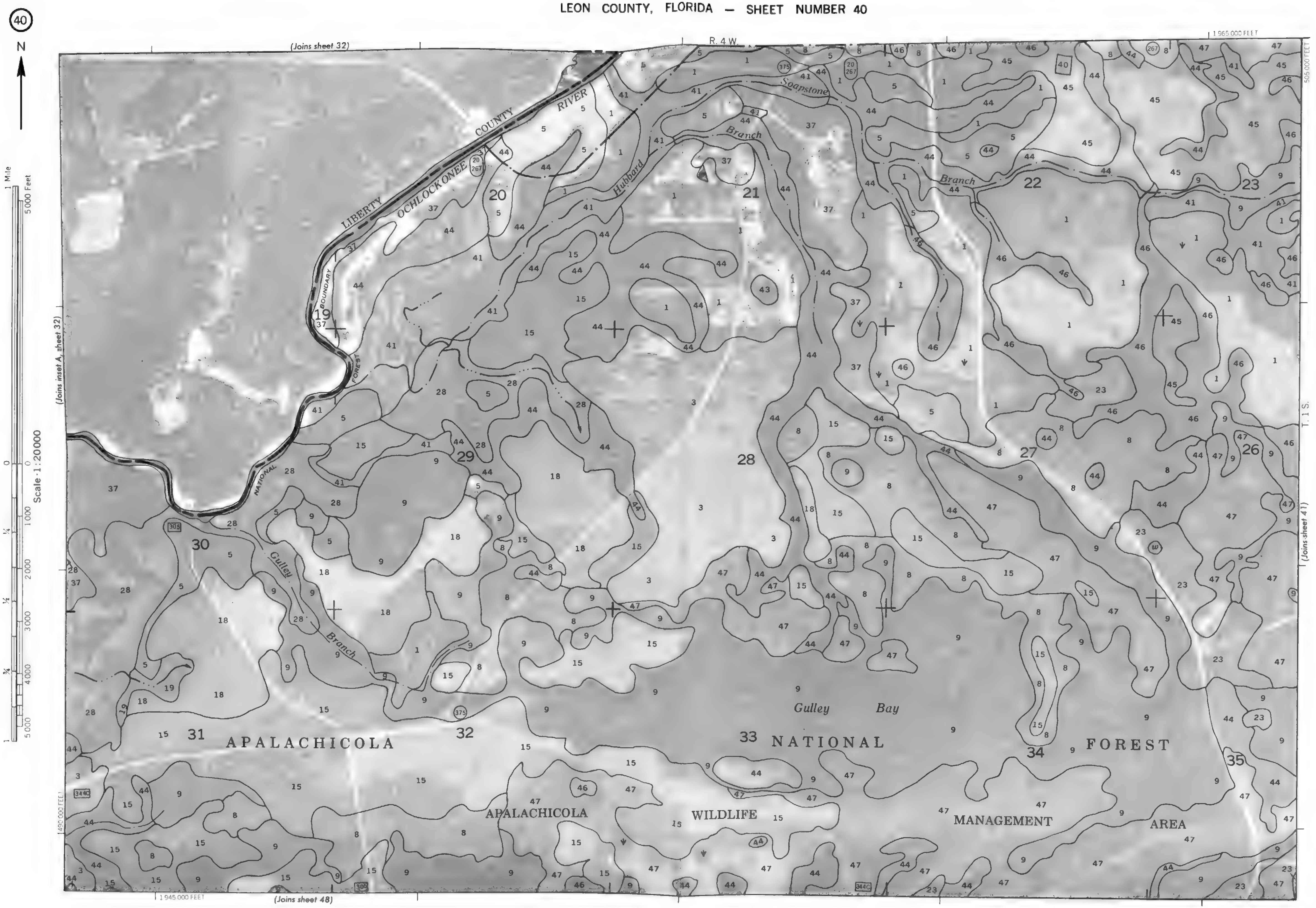
LEON COUNTY, FLORIDA — SHEET NUMBER 36

LEON COUNTY, FLORIDA — SHEET NUMBER 37

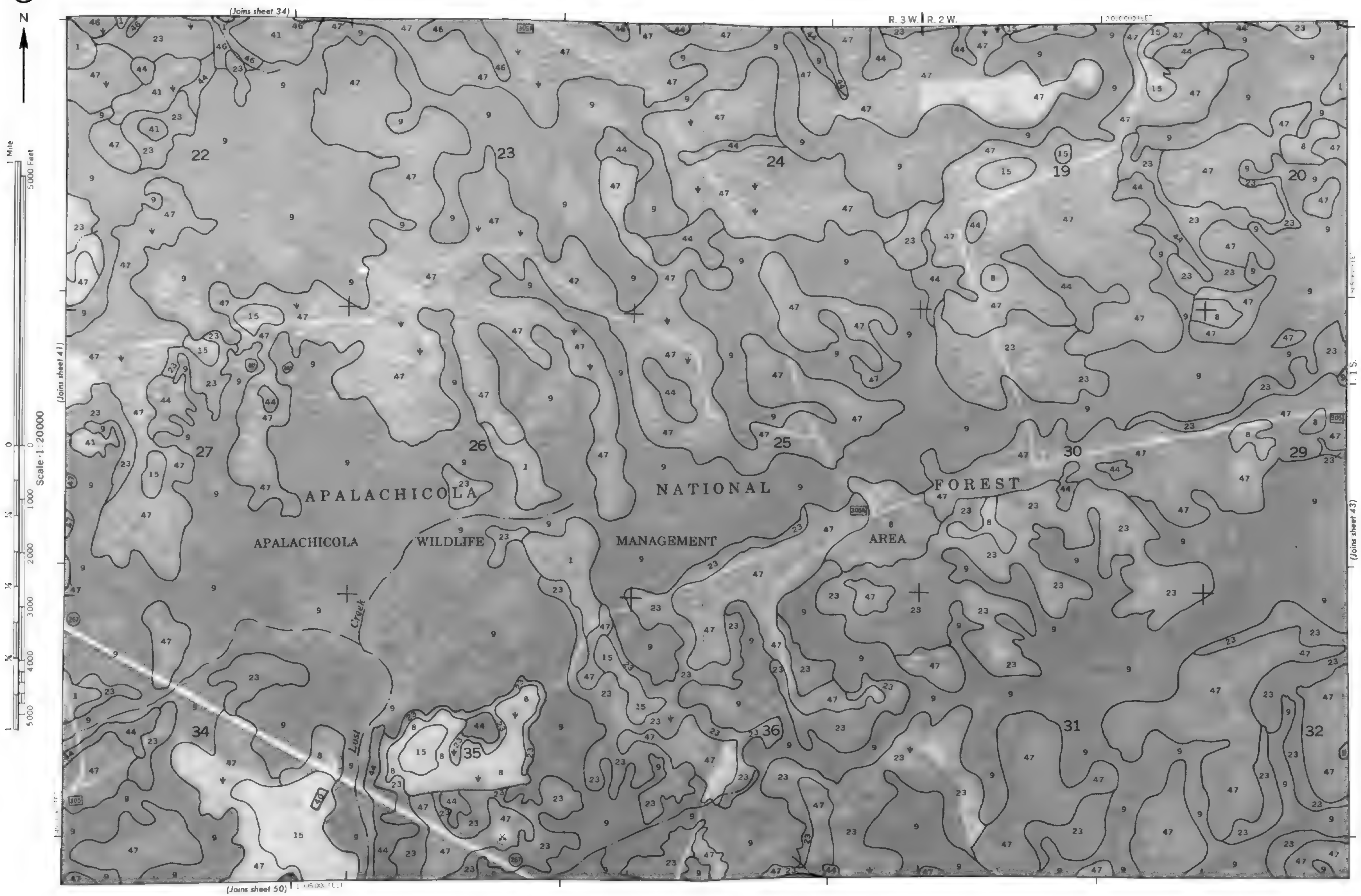
LEON COUNTY, FLORIDA — SHEET NUMBER 38

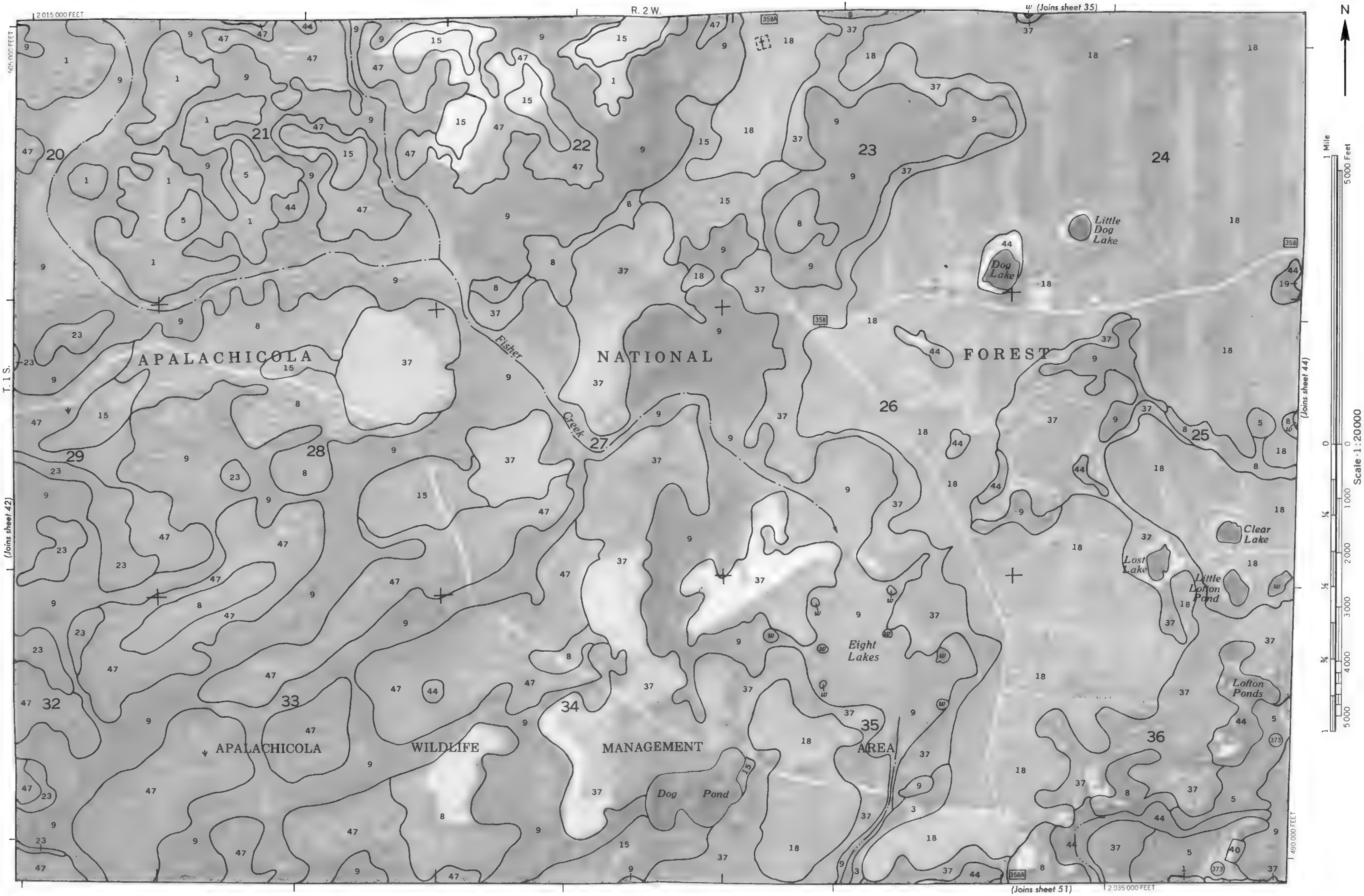
LEON COUNTY, FLORIDA — SHEET NUMBER 39

LEON COUNTY, FLORIDA — SHEET NUMBER 40




R. 4 W. | R. 3 W.
1 970 000 FEET
505 000 FEET
(Joins sheet 33)
(Joins sheet 42)
(Joins sheet 40)
(Joins sheet 49)
1 990 000 FEET
T. 1 N.
N
APALACHICOLA NATIONAL FOREST
Freeman Bay
Wolf Trap Bay
Grand Bay
19
20
21
23
24
25
26
28
29
30
31
32
33
35
36
1 Mile
5000 Feet
Scale 1:20000

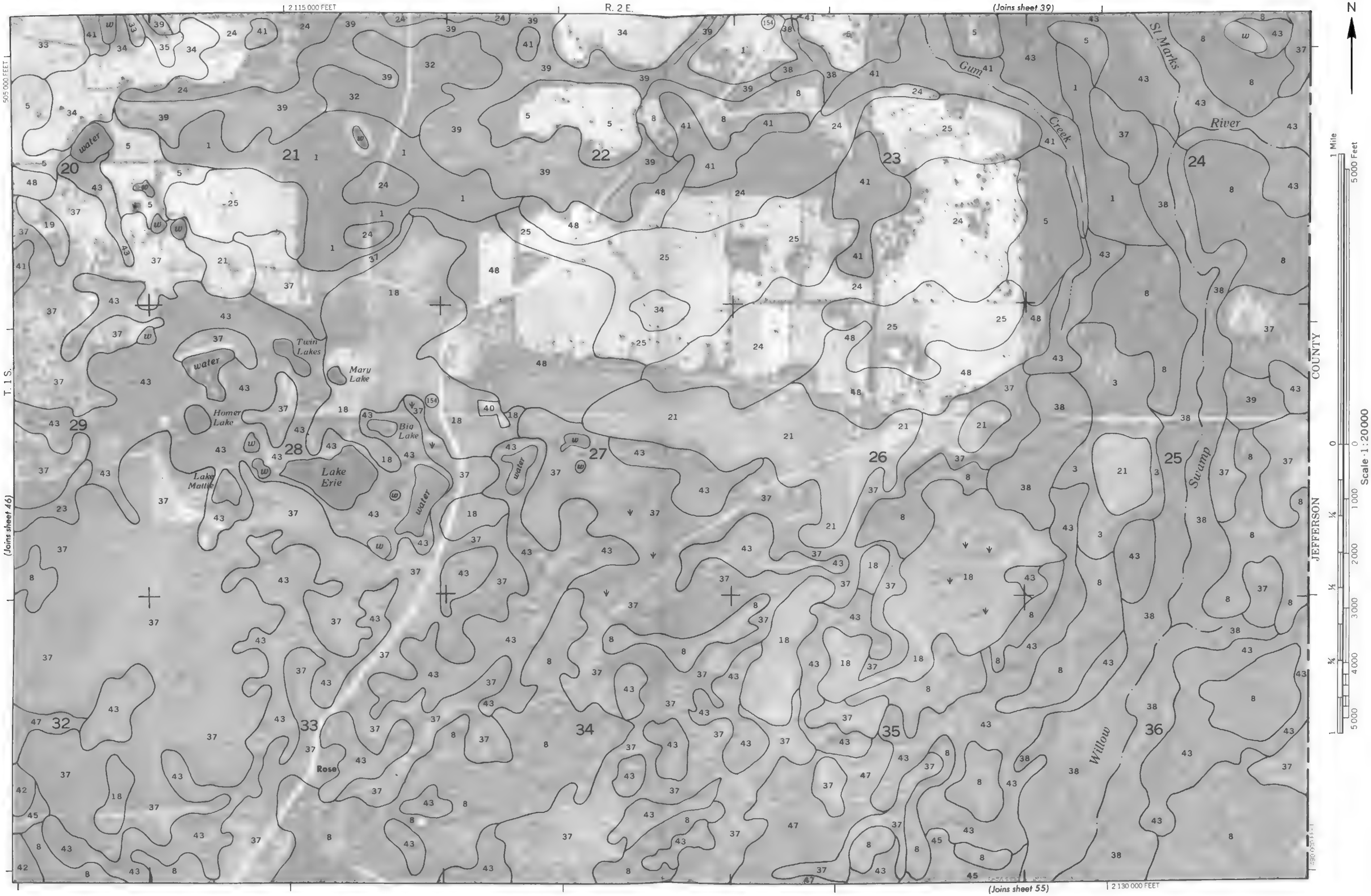

N
1 Mile
5000 Feet
Scale 1:20000
(Joins sheet 34)
R. 3 W.
R. 2 W.
T. 1 S.
(Joins sheet 41)
(Joins sheet 43)
(Joins sheet 50)
APALACHICOLA NATIONAL FOREST
APALACHICOLA WILDLIFE MANAGEMENT AREA
Creek
Lost


43
N
R. 2 W.
T. 1 S.
2 015 000 FEET
2 035 000 FEET
490 000 FEET
w (Joins sheet 35)
(Joins sheet 42)
(Joins sheet 44)
(Joins sheet 51)
APALACHICOLA
NATIONAL
FOREST
APALACHICOLA
WILDLIFE
MANAGEMENT
AREA
Fisher
Creek
Little Dog Lake
Dog Lake
Clear Lake
Lost Lake
Little Lofton Pond
Eight Lakes
Lofton Ponds
Dog Pond
358
358A
373
1 Mile
5000 Feet
Scale 1:20000

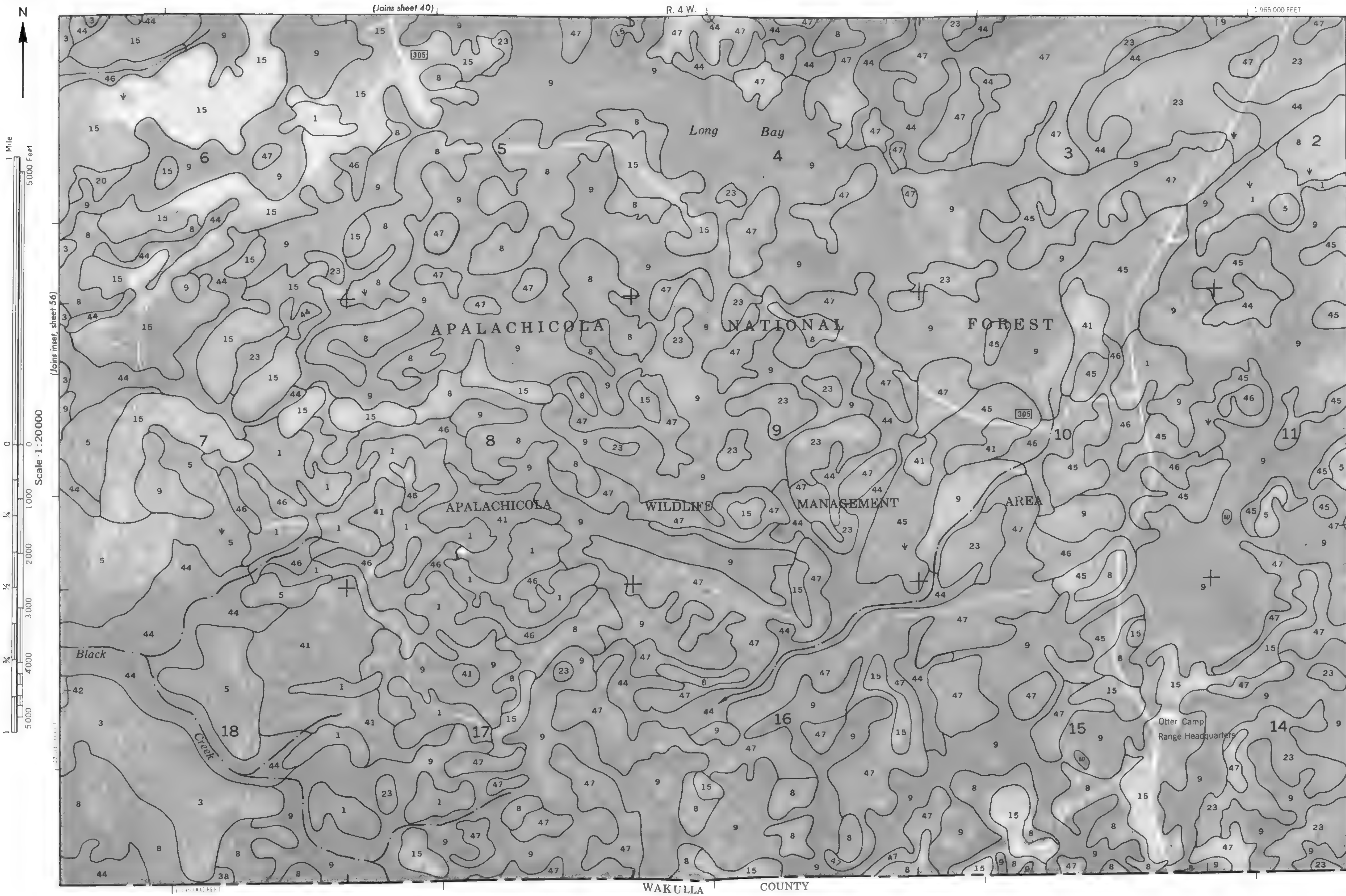

N
(Joins sheet 36)
R. 1 W.
2 060 000 FEET
505 000 FEET
SEWAGE DISPOSAL
SANITARY LANDFILL
FORBES PURCHASE LINE
water
APALACHICOLA WILDLIFE MANAGEMENT AREA
Lake Munson
T. 1 S.
(Joins sheet 43)
(Joins sheet 45)
APALACHICOLA NATIONAL FOREST
490 000 FEET
2 040 000 FEET
(Joins sheet 52)
1 Mile
5000 Feet
Scale 1:20000

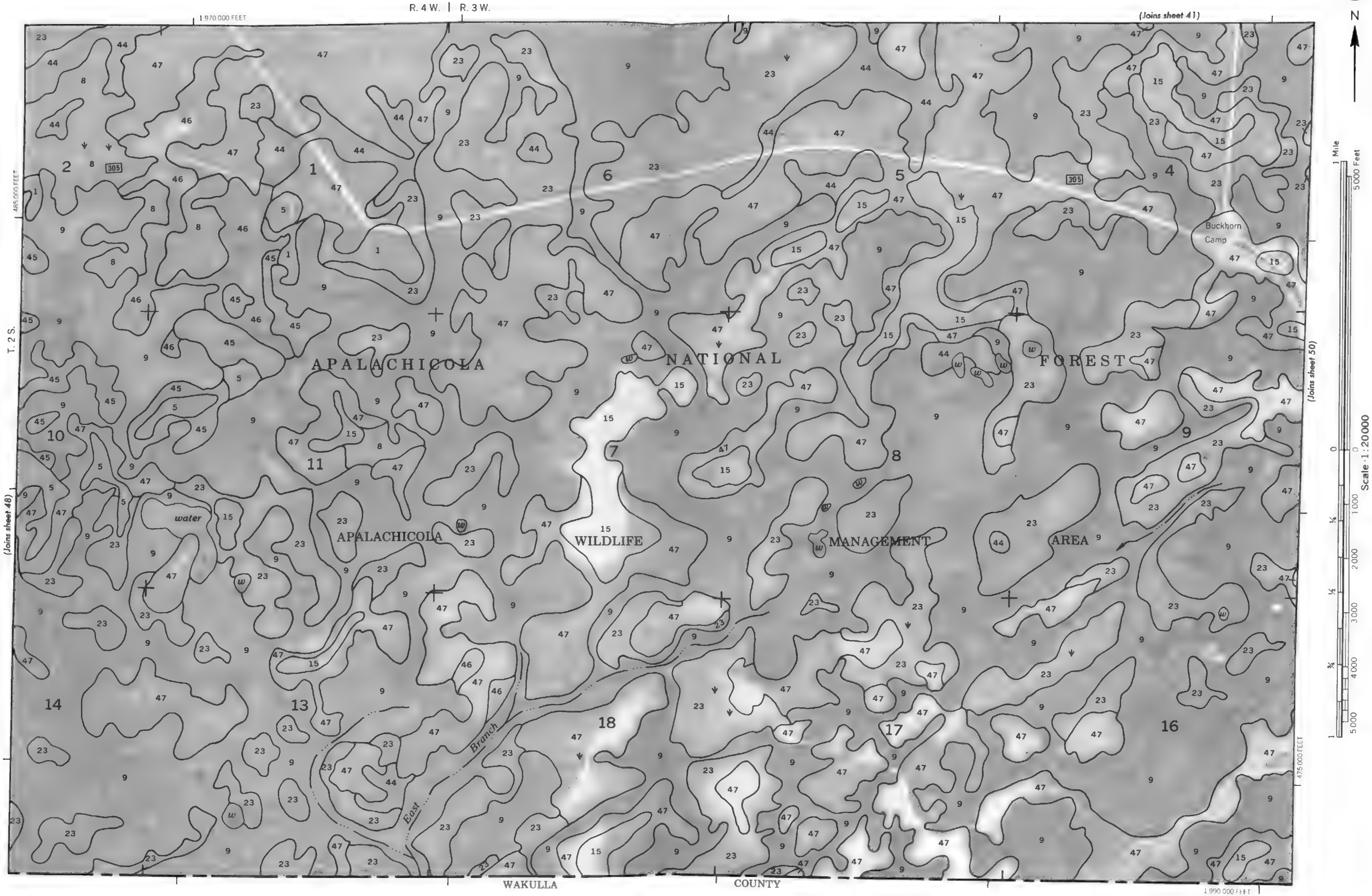

45
N
R. 1 W.
R. 1 E.
2 065 000 FEET
505 000 FEET
T. 1 S.
(Joins sheet 37)
(Joins sheet 44)
(Joins sheet 46)
(Joins sheet 53)
2 085 000 FEET
490 000 FEET
Belair
Lakeside
Sixmile Pond
TALLAHASSEE MERIDIAN
APALACHICOLA NATIONAL FOREST
APALACHICOLA WILDLIFE MANAGEMENT AREA
FORBES PURCHASE LINE
water
1 Mile
5000 Feet
Scale 1:20000

LEON COUNTY, FLORIDA — SHEET NUMBER 46

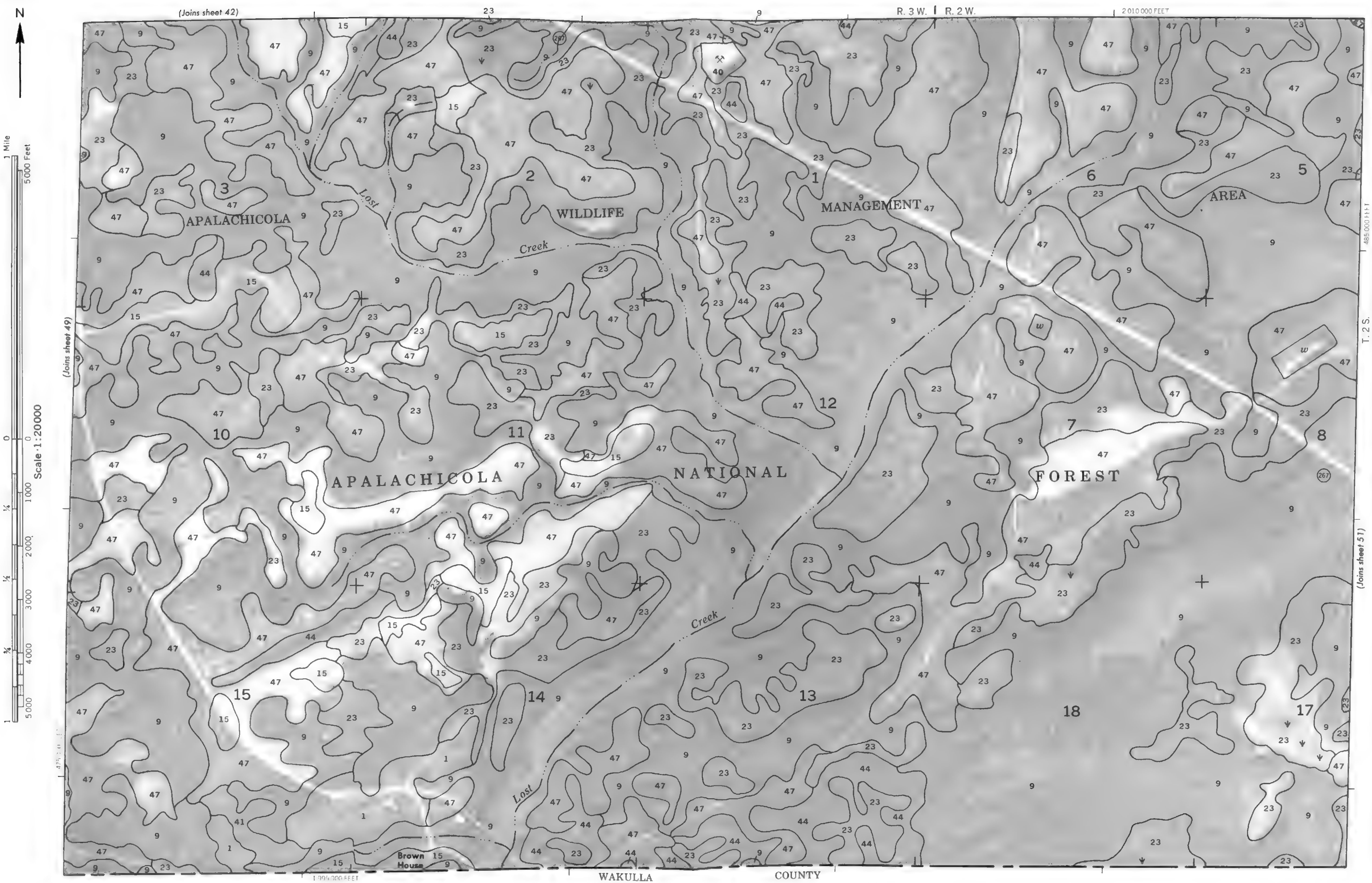

2 115 000 FEET
R. 2 E.
(Joins sheet 39)
505 000 FEET
T. 1 S.
(Joins sheet 46)
(Joins sheet 55)
2 130 000 FEET
JEFFERSON COUNTY
N
Scale 1:20000
1 Mile
5000 Feet
Gum Creek
St. Marks River
Swamp
Willow
Twin Lakes
Mary Lake
Homer Lake
Big Lake
Lake Erie
Lake Mattie
Rose
water

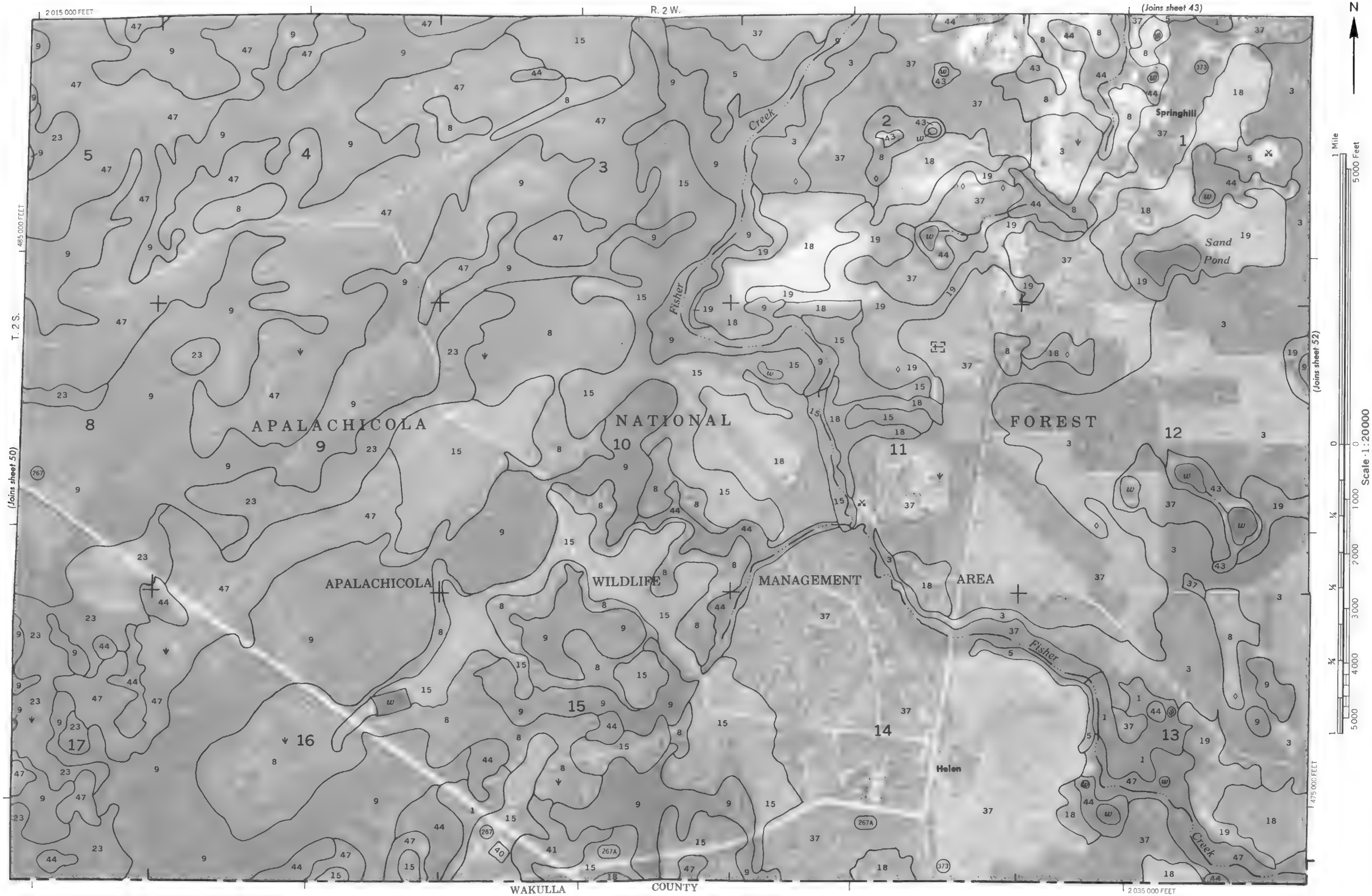
LEON COUNTY, FLORIDA — SHEET NUMBER 48



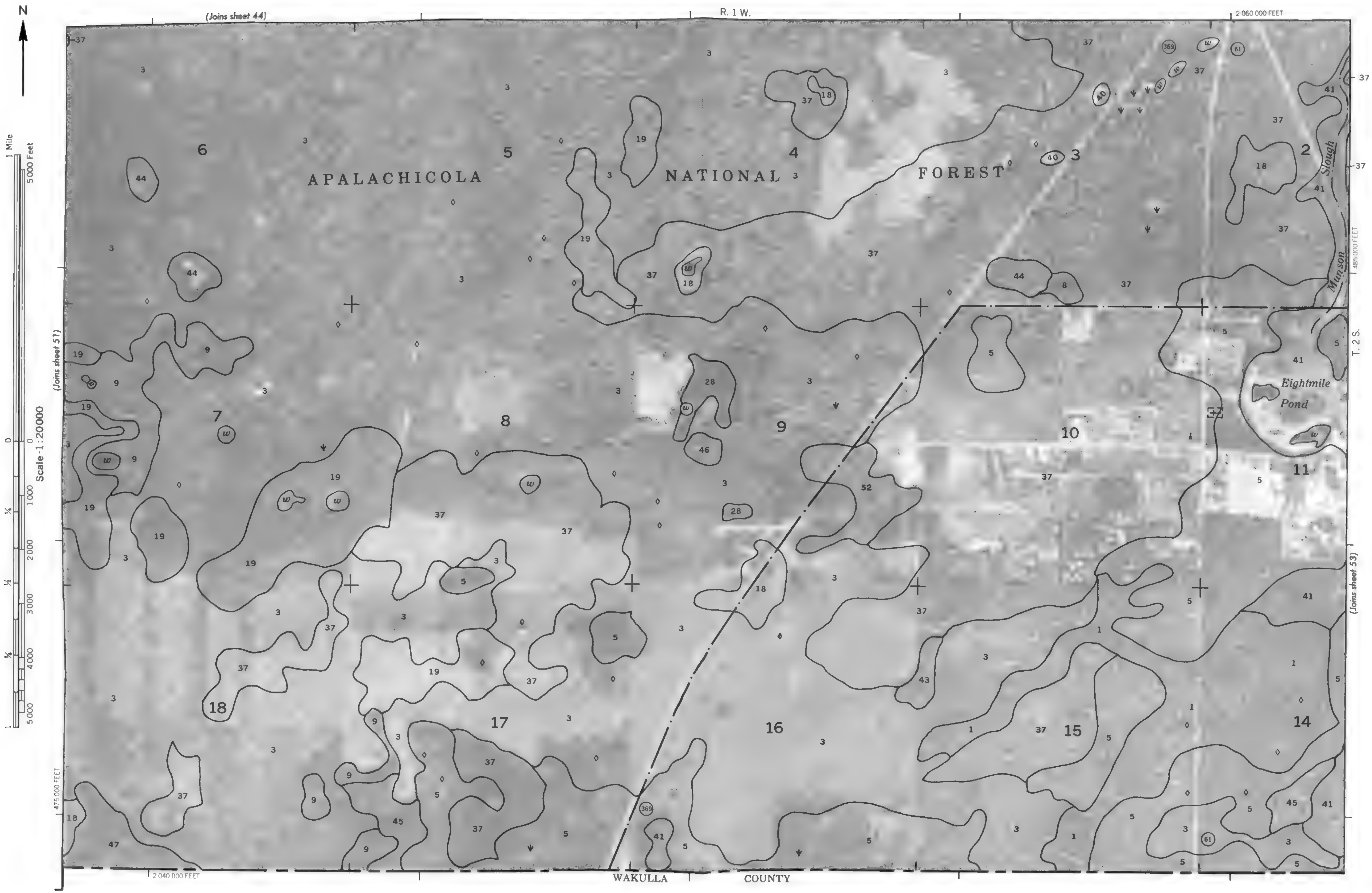

R. 4 W. | R. 3 W.
1 970 000 FEET
(Joins sheet 41)
N
485 000 FEET
T. 2 S.
(Joins sheet 48)
(Joins sheet 50)
305
APALACHICOLA NATIONAL FOREST
APALACHICOLA WILDLIFE MANAGEMENT AREA
Buckhorn Camp
water
East Branch
475 000 FEET
1 990 000 FEET
WAKULLA COUNTY
1 Mile
5000 Feet
Scale 1:20000

LEON COUNTY, FLORIDA — SHEET NUMBER 50



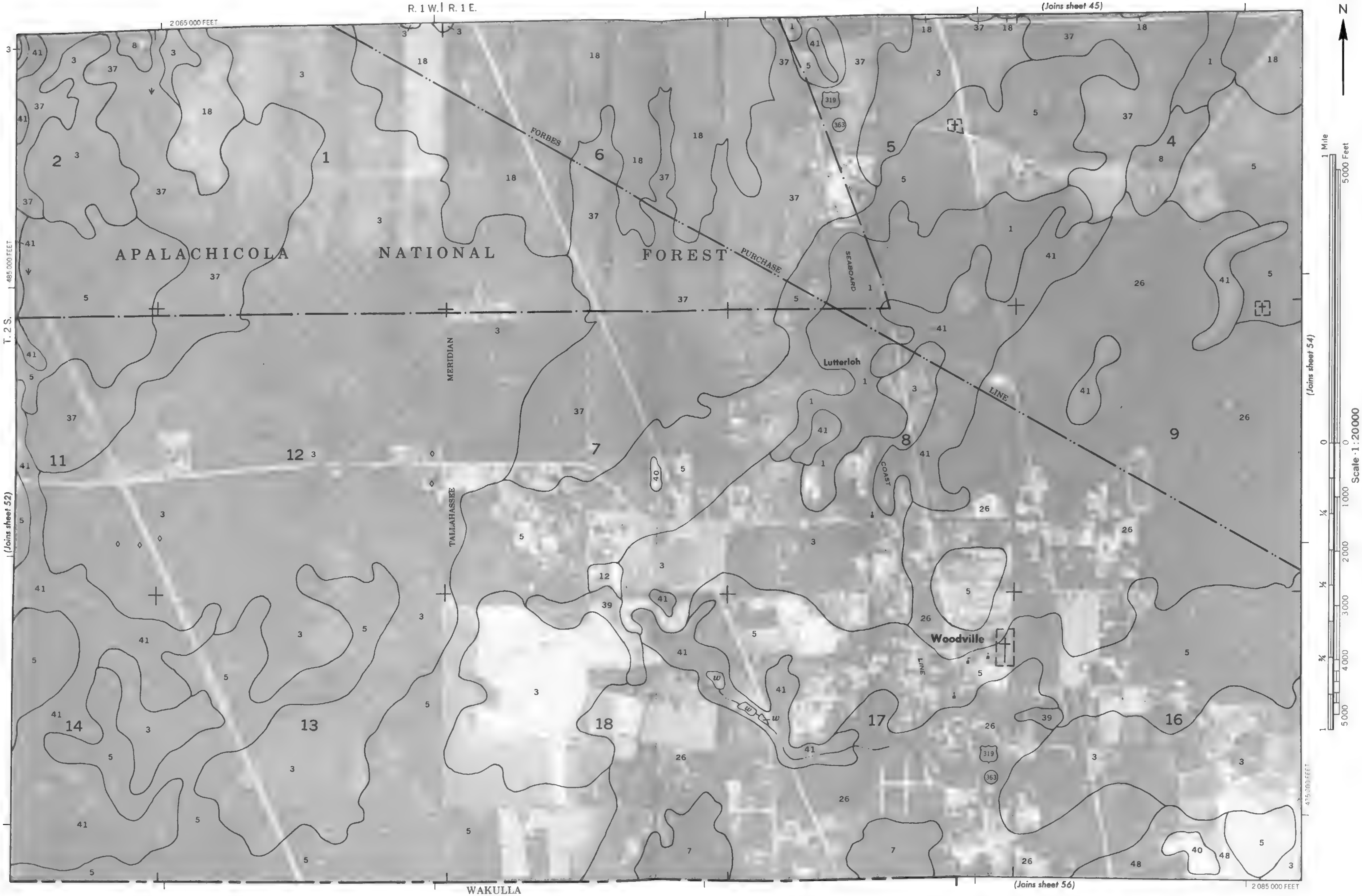

51
N
2 015 000 FEET
R. 2 W.
(Joins sheet 43)
485 000 FEET
T. 2 S.
(Joins sheet 50)
(Joins sheet 52)
APALACHICOLA
NATIONAL
FOREST
APALACHICOLA
WILDLIFE
MANAGEMENT
AREA
Fisher
Creek
Springhill
Sand
Pond
Helen
475 000 FEET
WAKULLA
COUNTY
2 035 000 FEET
1 Mile
5000 Feet
Scale 1:20000

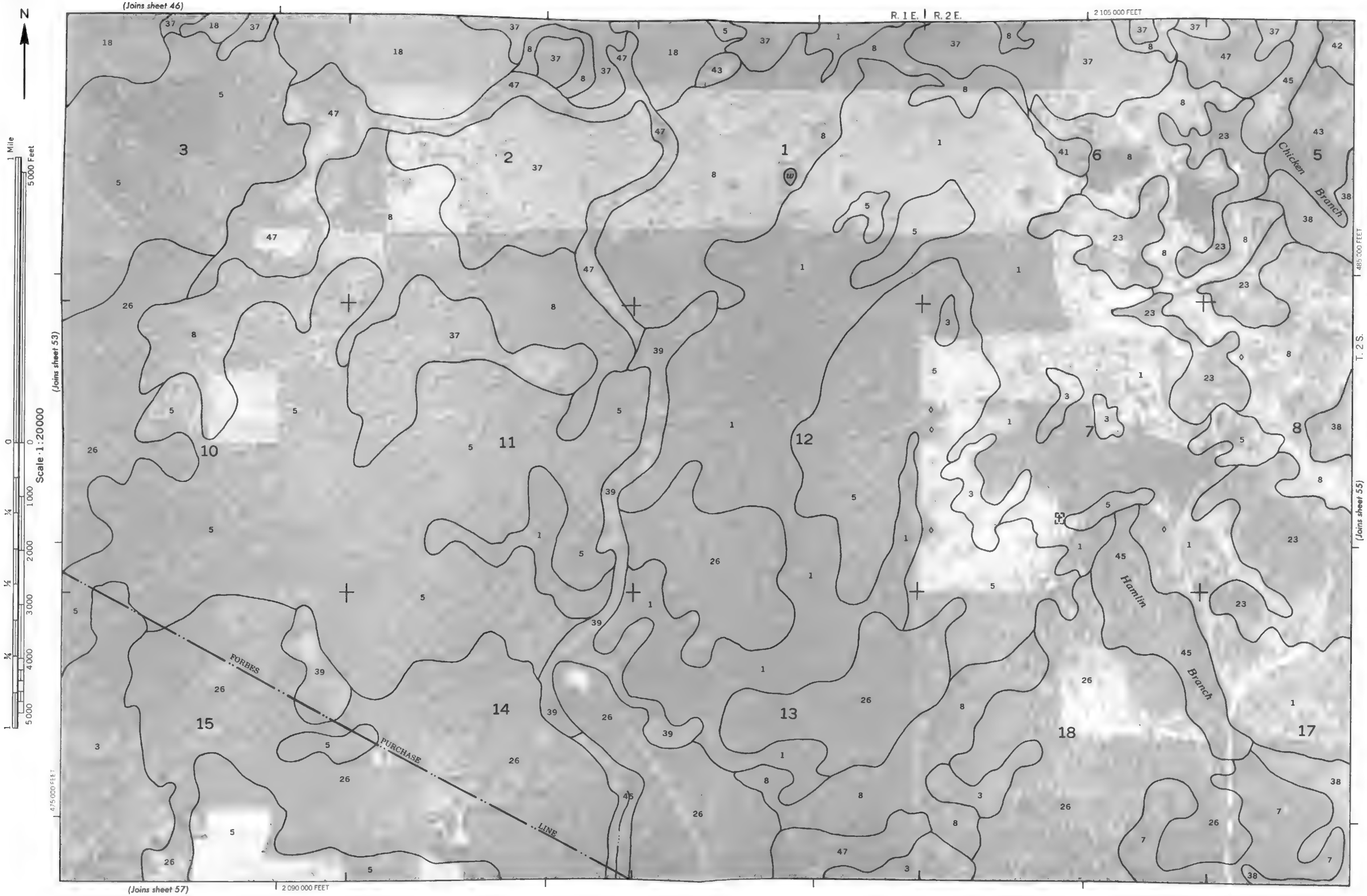
LEON COUNTY, FLORIDA — SHEET NUMBER 52

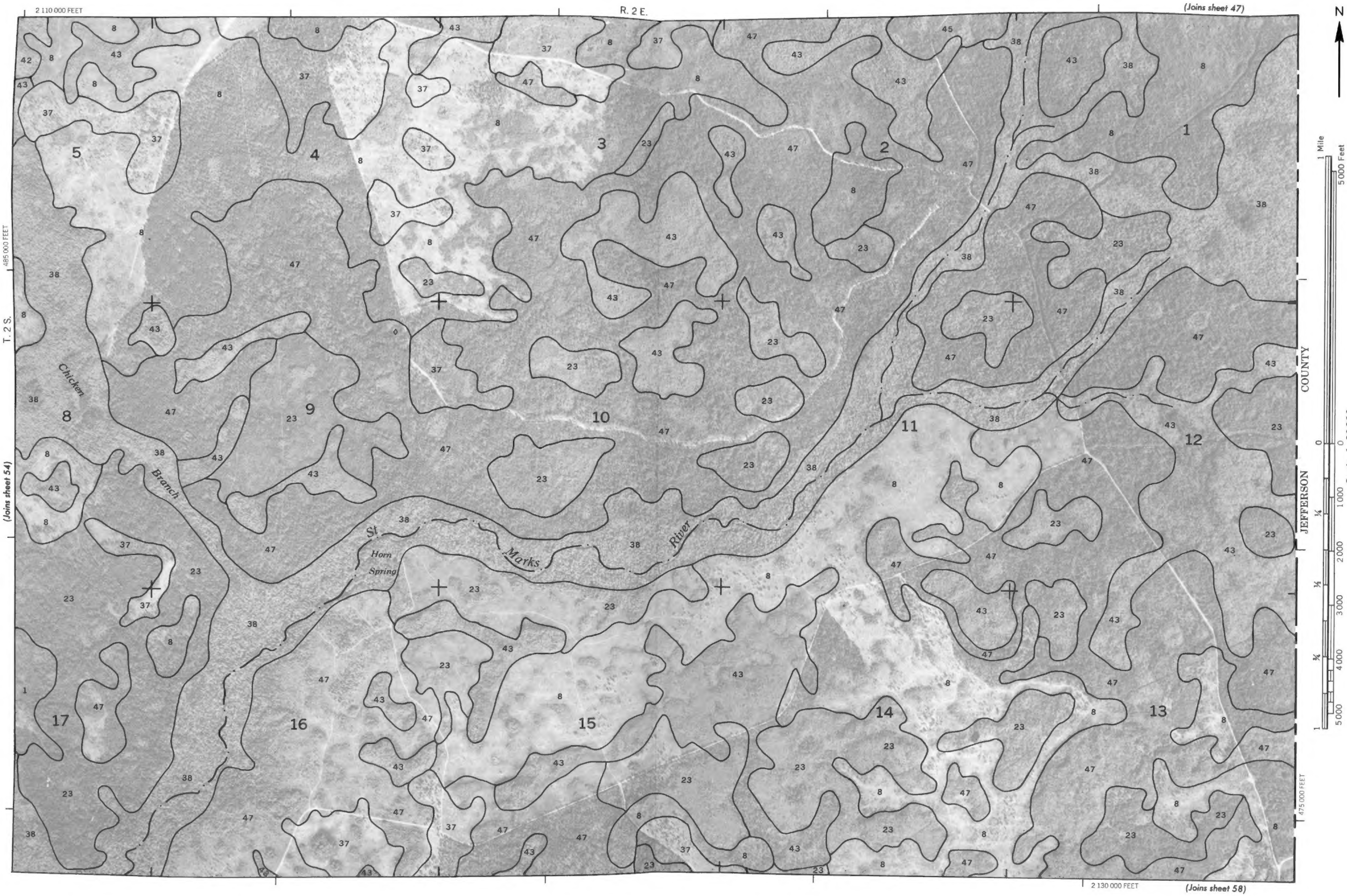


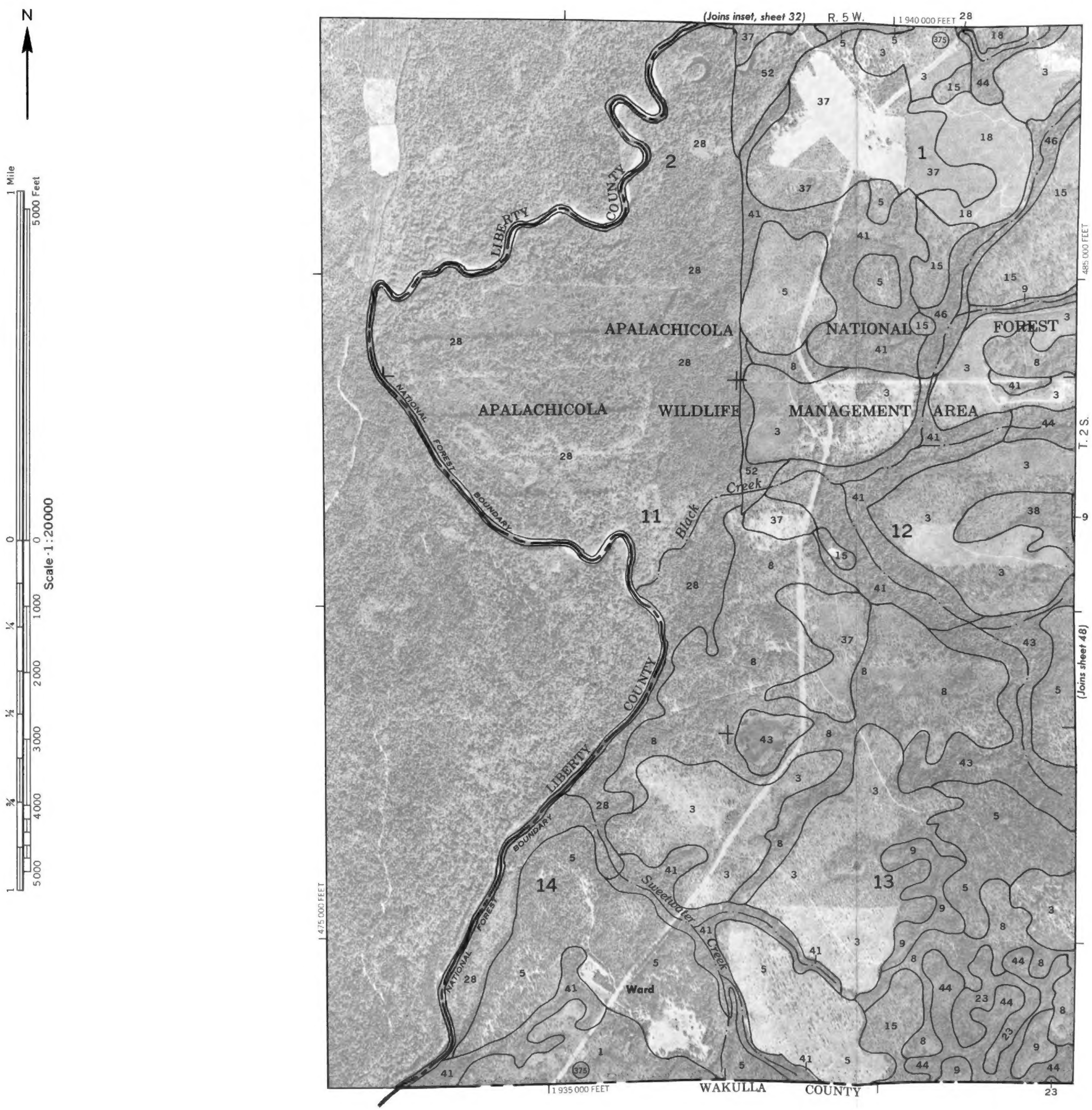
LEON COUNTY, FLORIDA — SHEET NUMBER 53

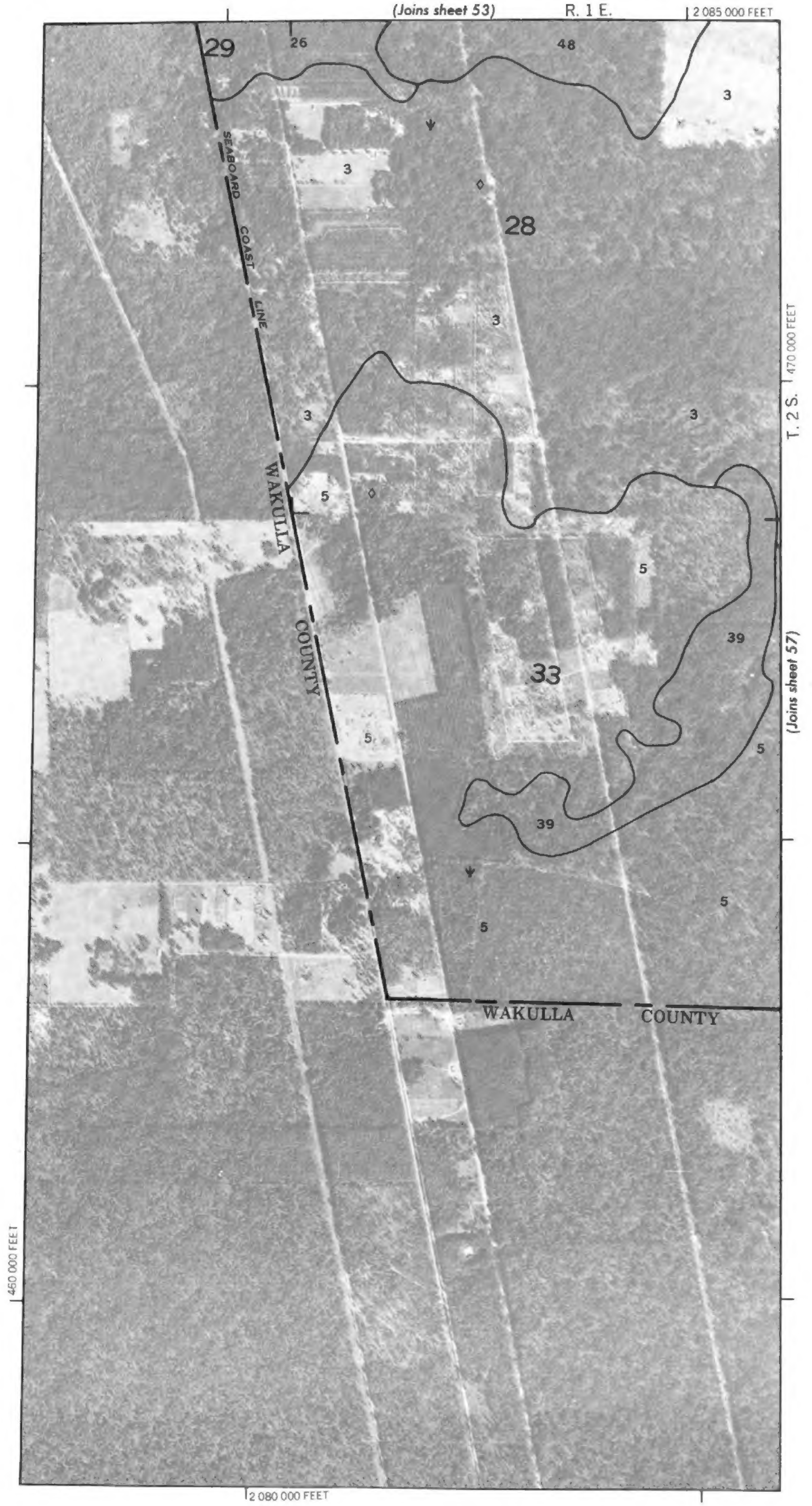
53



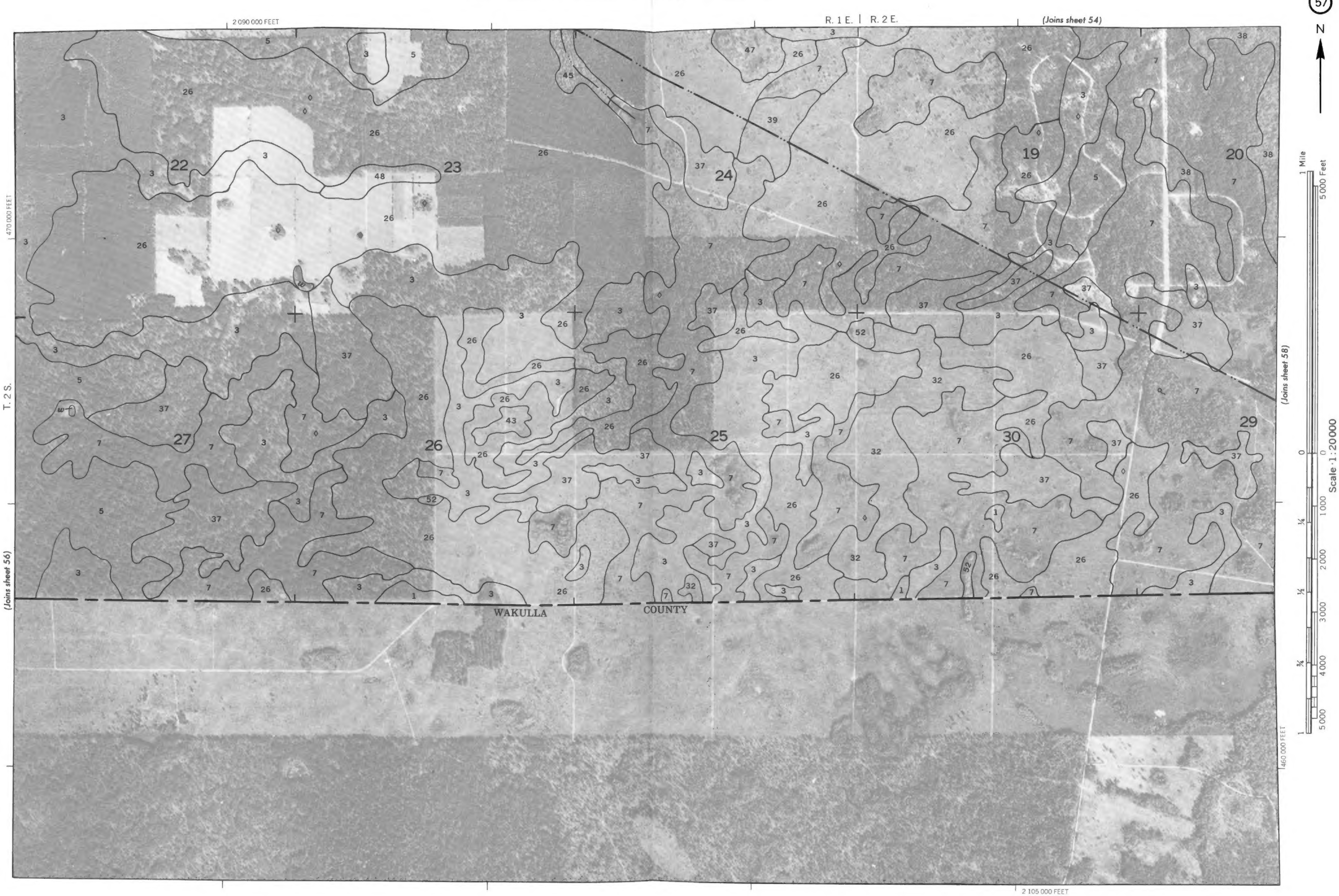

N
(Joins sheet 46)
(Joins sheet 53)
(Joins sheet 55)
(Joins sheet 57)
R. 1 E. | R. 2 E.
T. 2 S.
2 105 000 FEET
2 090 000 FEET
485 000 FEET
475 000 FEET
Scale 1:20000
1 Mile
5 000 Feet
Chicken Branch
Hamlin Branch
FORBES PURCHASE LINE


55
N
2 110 000 FEET
R. 2 E.
(Joins sheet 47)
485 000 FEET
T. 2 S.
(Joins sheet 54)
Chicken
Branch
St
Horn
Spring
Marks
River
JEFFERSON
COUNTY
475 000 FEET
2 130 000 FEET
(Joins sheet 58)
1 Mile
5000 Feet
Scale 1:20000


N
Scale 1:20000
1 Mile
5000 Feet
(Joins inset, sheet 32)
R. 5 W.
1 940 000 FEET
APALACHICOLA NATIONAL FOREST
APALACHICOLA WILDLIFE MANAGEMENT AREA
LIBERTY COUNTY
NATIONAL FOREST BOUNDARY
Black Creek
Sweetwater Creek
Ward
T. 2 S.
485 000 FEET
475 000 FEET
(Joins sheet 48)
1 935 000 FEET
WAKULLA COUNTY


(Joins sheet 53)
R. 1 E.
2 085 000 FEET
SEABOARD COAST LINE
WAKULLA COUNTY
470 000 FEET
T. 2 S.
(Joins sheet 57)
450 000 FEET
2 080 000 FEET

LEON COUNTY, FLORIDA — SHEET NUMBER 57



LEON COUNTY, FLORIDA — SHEET NUMBER 58